PROJECT MANUAL

CLAYTON B. WIRE REHABILITATION AND MAINTENANCE PROJECT

Book 2 of 2

CONTRACT NUMBER: 0262-461-CBW-R-M

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

DOCUMENT 00 01 10

TABLE OF CONTENTS – BOOK 2 OF 2

Conditions of the Contract

Technical Specifications – See Book 2 of 2

Exhibit B - HAZMAT Survey - Provided for Reference Only. HAZMAT Abatement NIC
(76 Pages)

ENTEK
CONSULTING GROUP, INC.
4200 Rocklin Road, Suite 7, Rocklin, CA 95677 Phone (916) 632-6800 Fax (916) 632-6812 www.entekgroup.com

HAZARDOUS MATERIALS SURVEY
FINAL REPORT

OWNER/CLIENT

Sacramento City Unified School District
5735 47th Avenue
Sacramento, CA 95824

CONTACT

Mr. Chris Ralston, Director III
Facilities Management, Maintenance & Operations, and Resource Management

SURVEY ADDRESS

Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

BUILDING(S) SURVEYED

Carpet Flooring, MPR Ceiling, Portable Restroom, Bldg 14-17
Campus Reopening Project

PREPARED BY

Blake Howes
CAC #13-5015 & CDPH #I/A 3315
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Entek Project #22-6437

December 8, 2022

ENTEK

TABLE OF CONTENTS

Executive Summary

The United States Environmental Protection Agency, National Emission Standards for Hazardous Air Pollutants (US EPA NESHAP), 40 CFR Part 61 - Nov. 20, 1990, requires an owner or operator of a demolition or renovation project to thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos-containing materials (ACM) prior to the commencement of that project.

This inspection report was requested by Chris Ralston, Director III of the Facilities Management, Maintenance & Operations, and Resource Management department for the Sacramento City Unified School District (SCUSD).

The purpose of the inspection was to comply with US EPA NESHAP requirements and the Sacramento Metropolitan Air Quality Management District (SMAQMD) which has jurisdiction for this project site to determine if asbestos containing materials are present which may be impacted during an upcoming project, which will various areas of all buildings currently located at the Clayton B Wire Elementary School campus, 5100 El Paraiso Avenue, Sacramento, California. The school is currently not in use, and will be reopened for students in the near future.

Paints, coatings, and glazed ceramic tiles were also tested for lead content for compliance with Cal/OSHA lead in construction regulations. It is our understanding the school was originally constructed in the 1960's.

The attached drawings show approximate sample locations and also identify those bulk sample materials analyzed and found to contain asbestos greater than 1% with a (+) after the sample number. Materials analyzed and found to contain less than 1% asbestos or reported as none detected have a (-) after each sample number.

Materials are classified in the tables of this report as regulated asbestos containing material (RACM), Category I (CAT-I) or Category II (CAT-II) ACM, or asbestos containing construction material (ACCM), which included collecting multiple samples of some materials. Contractors and other individuals who view the sample locations and associated results indicated with either a (-) or a (+) on the drawing to make determinations take the risk of misidentifying a material and may arrive at determinations which are in direct conflict with the written findings of this report. This use of the drawing and the information provided on it relating to individual sample results in determining if a material does or does not contain asbestos is not recommended.

This is a summary of the report. The report must be read in its entirety, and the reader must review all the detailed information provided in the body of the report prior to making any interpretations, or conclusions pertaining to the information. Any conclusions made by the reader about the information provided in the body of this report which are contradictory or not included in this report are the responsibility of the reader.

Asbestos

On November 29-30, 2022 Entek conducted a survey specific to areas designated by the Owner which included the following:
1) Carpet flooring and associated materials throughout campus
2) Multi-Purpose Room ceiling
3) Portable Restroom near the Multi-Purpose Building
4) All areas of the building with rooms 14-17
5) Damaged ceiling materials where found
6) Wall materials where anchoring of new electrical components may occur (classrooms)

The results of testing for asbestos during this survey indicate asbestos is present in multiple materials throughout the campus. A quick summary is detailed in the following bullet points, with specifics pertaining to individual materials found in later sections of this report.

Materials Found or Assumed to Contain Asbestos:

Administration Office Building
- Black mastic associated with carpet flooring

Multi-Purpose Building
- Drywall joint compound associated with ceilings above 12" acoustic ceiling tile
- Brown cove mastic associated with carpet floors at stage area
- 9" Green vinyl floor tile & mastic in break room

Rooms 1-4 & Storage Room
- Vinyl floor tile & black mastic found beneath carpet and visible 12" vinyl floor tile
- 9" Green vinyl floor tile & mastic in storage room near room 4

Room 5-8
- None

Rooms 9-12
- Vinyl floor tile found beneath carpet and visible 12" vinyl floor tile

Kindergarten Room
- Black mastic associated with carpet flooring

Portable Room 13
- None

Rooms 14-17
- Vinyl floor tile & black mastic found beneath carpet and visible 12" vinyl floor tile - Rooms 15-17
- Brown sheet vinyl flooring - Room 14 restroom

Rooms 18-19
- Black mastic associated with vinyl tile beneath carpet and visible 12" vinyl floor tile
- Brown cove mastic

Portable Rooms 20-21
- NONE

Portable Rooms 22-23
- NONE

Portable Rooms 24-26
- NONE

Portable Rooms 27-28
- NONE

Portable Room 33
- NONE

Preschool Portable
- NONE

Lead

Entek investigated existing paints and applied coatings in an effort to determine if lead was present in these materials. The materials detailed in the following list were all found or assumed to contain more than 5,000 parts per million (ppm) lead and are classified as lead-based paint (LBP). If more than 100 square feet of these materials are impacted by a "trigger task", prior notification to Cal/OSHA will be required.
- White colored paint - Metal I-beams, rooms 14-17

The paints detailed in the following list were determined to contain lead in amounts less than 5,000 ppm and are classified as lead containing paint (LCP). Any work designated by California Occupational Safety Health Administration (Cal/OSHA) as a "trigger task" which will impact these paints, coatings, or materials must be done by properly trained personnel, in compliance with all lead related Cal/OSHA regulations and requirements.
- Tan colored paint - Wood wall panels throughout school
- Blue/Green colored paint - Wood wall panels throughout school
- White colored paint - Wood wall panels throughout school

The paints detailed in the following list were determined not to contain lead above the analysis method detection limit of 100 ppm.
- White over blue colored paint - Wood walls, rooms 15-16

Other Hazardous Materials

Entek did not specifically inspect for mercury containing fluorescent light tubes or light ballast which may contain polychlorinated biphenyls (PCBs) or equipment or systems which may contain Freon or other fluorocarbons. However, due to the age of the school, information pertaining to these materials is included in this report for your use and reference.

Introduction

This report presents results of an asbestos and lead survey performed by Entek which included targeted interior and exterior areas of all buildings for an upcoming campus reopening project at Clayton B Wire Elementary School located at 5100 El Paraiso Avenue in Sacramento, California.

The inspection was conducted by Mr. Blake Howes on November 29-30, 2022. Mr. Howes is a Cal/OSHA Certified Asbestos Consultant (CAC) and a State of California Department of Public Health (CDPH) certified Lead Inspector/Assessor.

This report was prepared for Mr. Chris Ralston, Director III of the Facilities Management, Maintenance & Operations, and Resource Management department for the SCUSD.

Building Descriptions

For the purposes of this survey, the Clayton B Wire Elementary School campus has been divided up into 16 distinct buildings or sections. These buildings or section are referred to as follows:

1) Administration Office Building
2) Multi-Purpose Building
3) Portable Restroom
4) Rooms 1-4
5) Rooms 5-8
6) Rooms 9-12
7) Portable Room 13
8) Kindergarten Building
9) Rooms 14-17
10) Rooms 18-19
11) Portable Rooms 20-21
12) Portable Rooms 22-23
13) Portable Rooms 24-26
14) Portable Rooms 27-28
15) Portable Room 33
16) Preschool Portable

Interior finish materials found throughout this campus include carpet, vinyl floor tiles, sheet vinyl flooring, rubber vinyl base cove, drywall, plaster, ceramic tile, wood or fiberboard wall panels, and acoustic ceiling tiles.

Exterior finish materials include stucco, plaster, concrete, and metal components. Many exterior windows are panes set into frames with glazing putty. Roof systems are rolled asphaltic. Mechanical systems are roof and wall mounted HVAC units.

The building with rooms 14-17, and especially rooms 15-16 have had significant water and mold damage occurrences. Visible mold growth and detectable odors are present in these areas.

Asbestos Inspection and Sample Collection Protocols

Entek included targeted interior and exterior areas of the buildings included in this report, but used only limited methods to look within enclosed wall or ceiling cavities during this investigation. Entek did include all suspect materials observed in, on, or associated with the areas included in this report.

Bulk samples were collected of various materials suspected to contain asbestos by utilizing a power drill and coring tube, cutting the materials with a razor knife, or use of other appropriate hand tools.

Surfacing materials were collected in a statistically random manner representative of the associated homogenous area as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987 and the Sacramento Metropolitan Air Quality Management District (SMAQMD) Compliance Assistance Advisory published in June 2010.

Miscellaneous materials were collected from each homogenous area in a manner sufficient to determine whether the material is or is not ACM as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987.

Approximate locations of all samples collected during this inspection are indicated on the "Bulk Asbestos Material Analysis Request Form for Entek", which served as the chain of custody for the samples, and on the building diagrams attached to this report.

Asbestos Bulk Sample Results

There were several materials observed which are considered "suspect" under US EPA guidelines. Under current US EPA guidelines for conducting building inspections for ACM, all "suspect" materials must be assumed to contain asbestos until otherwise determined by laboratory testing.

The samples of materials suspected of containing asbestos were submitted to Asbestech, a laboratory located in Rancho Cordova, California. These samples were subsequently analyzed by polarized light microscopy (PLM) with dispersion staining.

The US EPA NESHAP and SMAQMD uses the terms Regulated Asbestos Containing Material (RACM), Category I, and Category II when identifying materials which contain asbestos in amounts greater than 1%. Cal/OSHA uses the term ACCM which indicates a manufactured construction material contains greater than 0.1% asbestos by weight by the PLM method. This definition can be found in Title 8, 1529.

All samples found to contain <1% asbestos by PLM analysis which are not identified as containing >1% asbestos, classified as RACM, CAT-I, or CAT-II materials in the following results tables were additionally analyzed using the 400 point count (PC) method with analysis by PLM. This additional analysis is required by NESHAP and enforced by SMAQMD. The PC method analysis results were used only to verify a material did not contain >1% asbestos as a single layer material, or as a composite result which is provided

for materials such as sheet rock/drywall and joint compound used for wall/ceiling systems. A result reported as none detected or "trace" by the PC method only verified the initial PLM result of <1% and shall not be used to determine the identified material does not contain asbestos. Copies of Asbestech's laboratory reports and accreditations are attached.

Neither OSHA or Cal/OSHA allow for composite sampling of wall system materials, and neither address the use of the PC method to confirm a material identified as containing <1% asbestos by the PLM method either contains <1% asbestos or is non-detected for asbestos. As a result, reporting of the asbestos content related to a composited material such as sheet rock/drywall and joint compound does not apply to determining if a material is or is not an ACM by OSHA or an ACCM by Cal/OSHA.

A total of 126 bulk samples were collected of all the materials considered to be "suspect" which were observed during this investigation. Some of those samples contained multiple layers which were individually analyzed to determine their asbestos content. Analysis of all samples collected was by PLM with dispersion staining. Results of the analysis are listed in the following tables, broken out by materials found or assumed to be present in each building:

Suspect Materials Found or Assumed TO Contain Asbestos Administration Office Building					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
01A-C	Black Carpet Mastic	**<1-5% CHRYSOTILE**	Beneath Carpet Throughout Administration Office Building	CAT-I	500 Sq.
Please see sample series 02-04 in Appendix A for materials found not to contain asbestos in this area					

Intentionally Blank

Suspect Materials Found or Assumed TO Contain Asbestos Multi-Purpose Building					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM/PC**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
06A-B	Brown Cove Mastic	**<1% FIBROUS TREMOLITE**	Stage Area Where Carpet is Rolled onto Wall as Cove Material	CAT-II	20 Sq.
Please note samples 06A-B were not confirmed to contain <1% asbestos by 400 point count and must be assumed to contain >1% asbestos for removal and disposal purposes					
08A-C	Drywall & Joint Compound	**NONE DETECTED** (Drywall) **<1% CHRYSOTILE** (Joint Compound) **<1% CHRYSOTILE** (Composite)	Main Room and Kitchen Ceilings Above 12" Acoustic Tile	Cal/OSHA ACCM (Confirmed by 400 point count analysis)	3,000 Sq.
n/a	Green 9" Vinyl Floor Tile, Black Mastic	**ASSUMED POSITIVE** (Floor Tile) **ASSUMED POSITIVE** (Black Mastic)	Break Room	CAT-I	280 Sq. 280 Sq.
Please see sample series 05, 07, & 09 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Restroom Portable					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
None	None	None	None	None	None
Please see sample series 10-13 in Appendix A for materials found not to contain asbestos in this area					

Intentionally Blank

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 1-4					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
14A-D	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic	**NONE DETECTED** (Yellow Mastic) **1-2% CHRYSOTILE** (Floor Tile) **1-5% CHRYSOTILE** (Black Mastic)	Rooms 1-4 Beneath Visible Carpet Flooring and 12" Vinyl Floor Tile	CAT-I	3,600 Sq. 3,600 Sq.
n/a	Green 9" Vinyl Floor Tile, Black Mastic	**ASSUMED POSITIVE** (Floor Tile) **ASSUMED POSITIVE** (Black Mastic)	Storage Room next to Room 4	CAT-I	50 Sq. 50 Sq.
Please see sample series 15-18 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 5-8					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
None	None	None	None	None	None
Please see sample series 19-22 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 9-12					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
23A-D	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic	**NONE DETECTED** (Yellow Mastic) **1-2% CHRYSOTILE** (Floor Tile) **NONE DETECTED** (Black Mastic)	Rooms 9-12 Beneath Visible Carpet Flooring and 12" Vinyl Floor Tile	CAT-I	3,600 Sq.
Please see sample series 24-26 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Kindergarten Building					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
27A-B	Yellow/Black Carpet Mastic	**NONE DETECTED** (Yellow Mastic) **1-5% CHRYSOTILE** (Black Mastic)	Beneath Carpet Throughout Main Room	CAT-I	400 Sq.
Please see sample series 28-30 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Portable 13					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
None	None	None	None	None	None
Please see sample series 31-35 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 14-17					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
36A-C	Yellow Mastic, Gray Vinyl Floor Tile, Black Mastic	**NONE DETECTED** (Yellow Mastic) **1-2% CHRYSOTILE** (Floor Tile) **1-5% CHRYSOTILE** (Black Mastic)	Rooms 15-17 Beneath Visible Carpet Flooring and 12" Vinyl Floor Tile	CAT-I	2,700 Sq. 2,700 Sq.
39A	Gray Vinyl Floor Tile (Bottom Layer), Black Mastic 1, Black Mastic 2	**NONE DETECTED** (Floor Tile) **NONE DETECTED** (Black Mastic 1) **1-5% CHRYSOTILE** (Black Mastic 2)	Room 17 Beneath Visible 12" Vinyl Floor Tile	CAT-I	Totaled with Series 36
40A	Brown Sheet Vinyl Flooring	**15-20% CHRYSOTILE**	Room 14 Restroom	RACM	12 Sq.
Please see sample series 37-38 & 41-45 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 18-19					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
46A-B	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic	**NONE DETECTED** (Yellow Mastic) **NONE DETECTED** (Floor Tile) **1-2% CHRYSOTILE** (Black Mastic)	Rooms 18-19 Beneath Visible Carpet Flooring and 12" Vinyl Floor Tile	CAT-I	1,800 Sq.
49A-B	Blue/Gray 4" Base Cove, White Mastic, Brown Mastic	**NONE DETECTED** (Base Cove) **NONE DETECTED** (White Mastic) **<1% FIBROUS TREMOLITE** (Brown Mastic)	Rooms 18-19 at Cove Material	CAT-II	60 Sq.
Please note samples 49A-B were not confirmed to contain <1% asbestos by 400 point count and must be assumed to contain >1% asbestos for removal and disposal purposes					
Please see sample series 47-48 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Portable Rooms 20-28 & 33					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
None	None	None	None	None	None
Please see sample series 50-71 in Appendix A for materials found not to contain asbestos in this area					

Suspect Materials Found or Assumed TO Contain Asbestos Preschool Portable					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
None	None	None	None	None	None
Please see sample series 72-75 in Appendix A for materials found not to contain asbestos in this area					

NOTE: Any CAT-I or CAT-II materials identified in the previous tables which will be subjected to mechanical removal, must be considered RACM for the purposes of notification to SMAQMD and classification of waste. Removal of any CAT-I or CAT-II materials prior to demolition of a building is dependent upon how the materials will be impacted and if the impact will cause the materials to become friable. If any remaining CAT-I or CAT-II materials will become friable they must be removed

prior to the initiation of demolition.

NOTE: Cal/OSHA regulates all materials containing greater than 0.1% asbestos. As a result, impact to materials identified as ACCM and ACM must be performed by properly asbestos trained personnel utilizing appropriate personal protection, work practices, as well as, properly constructed and demarcated work areas or containments, in accordance with Cal/OSHA asbestos regulations.

All sample number noted in the tables above start with ECG-22-6437-

The tables above provide an estimate of the amount of materials in square feet (Sq.) or linear feet (Ln.). Contractors are responsible for quantifying the exact quantity of materials impacted by the renovation or demolition and shall not rely on the quantities in the above tables.

US EPA AHERA uses three terms when determining the classification of a material for the purpose of sampling. These terms include miscellaneous, surfacing, and thermal system insulation (TSI).

Miscellaneous materials are building materials on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or TSI.

Surfacing materials are materials that are sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceiling and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

TSI is material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain, water condensation, or for other purposes.

The information provided in the tables of this report are for use by the Owner in determining where asbestos containing materials are located, and whether or not any future work may impact those materials. The information is also provided for use by any contractor who may perform work in areas impacting the materials listed in this report, and for use as appropriate by asbestos abatement contractors to provide costs related to work impacting ACM.

Any building materials which are considered "suspect" for containing asbestos which have not been identified in this report must be assumed to contain asbestos in amounts >1% until properly investigated and/or tested.

Materials commonly excluded from being suspected for containing asbestos include, but are not limited to: unwrapped pink and yellow fiberglass insulating materials or products, foam insulation, bare concrete, wood, metal, plastic, or glass. All other types of building materials or coatings on the materials listed above are commonly listed as "suspect" and must be tested prior to impact by a Contractor. Work impacting these untested or newly discovered materials must cease until an investigation can be completed.

Asbestos Regulatory Requirements

US EPA

The property included in this survey report is located in Sacramento County. Sacramento Metropolitan Air Quality Management District (SMAQMD) has been given authority for enforcement of the NESHAP regulations by means of their own rules (Rule 902 Asbestos).

A demolition is the wrecking, taking out, or burning of any load supporting structural member. A renovation is everything else. Ten day written notification to the SMAQMD is required prior to the performance of any demolition project regardless of asbestos being present or not. This notification would also apply to any renovation project which involves the wrecking, taking out, or burning of any load bearing structural member during a renovation as well.

There is a sufficient amount of ACM present to require a 10 day notification to the SMAQMD be submitted prior to starting work which will impact materials identified as RACM or CAT-I and CAT-II materials if they are made friable through mechanical means of removal. If more than 160 square feet, 260 linear feet or 35 cubic feet of RACM is planned for removal on the project, formal written notification to SMAQMD is required.

Cal/OSHA

Disturbance of any ACM or ACCM could generate airborne asbestos fibers and would be regulated by Cal/OSHA. Cal/OSHA worker health and safety regulations apply during any disturbance of ACM or ACCM by a person while in the employ of another. This is true regardless of friability or quantity disturbed.

Since it has been estimated more than 100 square feet of ACCM and ACM does exist and will be impacted during the upcoming project, a licensed asbestos contractor, certified by the State of California, and registered with Cal/OSHA is required to perform the asbestos related removal work.

For compliance with Title 8, Section 341.9, the asbestos contractor must send written notice at least one day (24 hours) prior to start of any work which will impact any amount of asbestos to the local office for the State of California, Department of Occupational Safety and Health, and perform all work in accordance with Cal/OSHA requirements.

Lead Inspection, Sampling, & Results

A total of five (5) bulk samples of the painted surfaces from various locations throughout the site were collected and submitted to MicroTest Laboratory. These samples were subsequently analyzed by atomic absorption spectrometry (AAS). Results of the analysis are listed in the following tables:

Paints/Coatings/ Materials Determined to be Lead Based Paint (LBP)		
Paint/Coating Color or Material	**Lead Content**	**Component/Location**
White Colored Paint	17,851 ppm	Metal I-Beam - Rooms 14-17

LBP - Materials/coatings/paints meeting the definition of lead-based paint as defined by the CDPH and the US EPA, currently defined as containing lead in concentrations equal to or greater than 1.0 mg/cm^2, 5,000 ppm, or 0.5% by weight.

Paints/Coatings/ Materials Determined to be Lead Containing Paint (LCP)		
Paint/Coating Color or Material	**Lead Content**	**Component/Location**
Tan Colored Paint	4,640 ppm	Wood Wall Panels - Throughout Campus
Blue/Green Colored Paint	2,996 ppm	Wood Wall Panels - Throughout Campus
White Colored Paint	885 ppm	Wood Wall Panels - Throughout Campus

LCP - Materials/coatings/paints which contain measurable amounts of lead. The disturbance of these materials/coatings/paints is regulated by Cal/OSHA.

Paints/Coatings/Materials Determined NOT TO Contain Lead	
Paint/Coating Color or Material	**Building Component**
Blue over White Colored Paint	Wood Wall Panels - Rooms 15-16

Paints determined "NOT TO" contain lead for the purposes of this report are those samples which when analyzed did not indicate lead to be present at or above the limit of detection for the analysis method used. This limit of detection was 100 parts per million (ppm). As a result, any paints shown "NOT TO" contain lead will not require any special training or work practices related to lead when impacted.

Lead Regulatory Compliance

Any upcoming project which may result in the disturbance of lead containing products or surfaces, but is not intended to remediate a lead hazard or specifically designed to remove LBP to reduce or eliminate a known hazard, would be considered "lead related construction work".

Lead related construction work does not fit the classification of a "lead abatement project" under CDPH Title 17 regulations. "*Abatement*" is defined in Title 17, Division 1, Chapter 8, Article 1 as "any set of measures designed to reduce or eliminate lead hazards or LBP for public and residential buildings, but does not include containment or cleaning." A *lead hazard* is defined in Title 17, Division 1, Chapter 8, Article 1 as "deteriorated LBP, lead contaminated dust, lead contaminated soil, disturbing LBP or presumed LBP without containment, or any other nuisance which may result in persistent and quantifiable lead exposure."

Lead related construction work means any "construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead-containing material or soil, may result in significant exposure of adults or children to lead". (Title 17, California Code of Regulations, Division 1, Chapter 8, Article 1).

Currently, Cal/OSHA has not established a definition for LBP, nor have they established minimum concentrations where their regulations do not apply. Cal/OSHA regulates all construction activities involving materials containing lead, including LBP. These regulations are found in CCR, Title 8 Section 1532.1 (§1532.1) Lead in Construction.

Since Cal/OSHA has not established a concentration of lead in a product where their regulations do not apply, any disturbance to products containing lead come under the jurisdiction of Cal/OSHA and their regulations. Disturbance of paints/coatings or materials determined to be LBP may trigger a pre-work notification to Cal/OSHA if "trigger tasks" disturb 100 square feet or more of those paints/coatings or materials. Trigger tasks are described in Title 8 CCR 1532.1.

Fluorescent Light Tubes and Polychlorinated Biphenyls (PCBs)

Fluorescent light tubes which contain mercury are considered a universal waste and must be packaged and recycled appropriately if they are removed from a building and not used again. The regulation, called the Universal Waste Rule, are in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 23.

Fluorescent light tubes are the bulb or tube portion of an electric lighting device and are commonly referred to as "lamps".Examples of other common electric lamps considered to be universal wastes include, but are not limited to, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Any lamp which is not spent and has been designated to be reused is not classified as a waste and does not meet the requirements of a hazardous waste or a universal waste.

Spent lamps typically contain concentrations of mercury exceeding the established Total Threshold Limit Concentration (TTLC) and/or the Soluble Threshold Limit Concentration (STLC) values. Therefore, these lamps must be sent to an authorized recycle facility or to a universal waste consolidator for shipment to an authorized recycling facility.

At a minimum, if removed lamps will not be reused they must be packaged in boxes/ packages/containers which are structurally sound, adequate to prevent breakage, and compatible with the content of the lamps. These packages must remain closed and be free of damage which could cause leakage under reasonably foreseeable conditions. Each container must be labeled or marked clearly with one of the following phrases: "Universal Waste Lamp(s)," or "Waste Lamp(s)," or "Used Lamp(s)." Entek recommends shipping any lamp not designated for reuse to a universal waste recycling facility once they have been packaged.

PCB containing light ballasts are to be considered a hazardous waste, and must be properly manifested for transport to a hazardous waste facility. Any contractor who may perform PCB related work (inspection, removal, clean-up) must be trained and qualified to do so. All workers must also follow current OSHA regulations including 29 CFR 1910.120 and 8 CCR

5192, as well as, other applicable federal, state, and local laws, and regulations. While light ballasts marked "No PCB" are not considered a hazardous waste, they are considered a universal waste. As a result, removal, packaging, and disposal/recycling of these types of ballasts must be conducted in accordance with current regulations of Title 22.

Freon and Fluorocarbons

Freon and other fluorocarbon products associated with HVAC systems, refrigerators, etc. may be present in or on the exterior of the buildings included in this investigation. Prior to demolition of a structure or removal of existing HVAC systems, refrigerators, or any other type of equipment which typically uses these types of coolant products shall have the coolant materials investigated prior to their demolition and removed from the mechanical systems and recycled in accordance with Cal/EPA requirements.

Limitations

Entek inspected targeted interior and exterior areas of all buildings located at the survey site to include the following components/areas:
1) Carpet flooring and associated materials throughout campus
2) Multi-Purpose Room ceiling
3) Portable Restroom near the Multi-Purpose Building
4) All areas of the building with rooms 14-17
5) Damaged ceiling materials where found
6) Wall materials where anchoring of new electrical components may occur (classrooms)

The information provided in this inspection report may not be used to extend the inspection results to areas not included in this report without additional review and sampling as necessary.

Entek did not perform destructive sampling to look into ceiling and wall cavities. As a result, it may be possible for materials to be hidden in these areas which are not included in this report. Entek also did not employ any destructive measures on floors of interior spaces or exterior areas covered with asphalt, concrete, or dirt.

If any new materials not listed as having been sampled, or listed as assumed for containing asbestos in this report are discovered, the new material must be assumed to contain asbestos until properly inspected and tested for asbestos content.

Entek's policy is to retain a full copy of these written documents for three (3) years once the file is closed. At the end of the 3 year period the written files will be destroyed without further notice. It is suggested copies of the file(s) are maintained as per the District's policy.

Entek will be providing only this electronic copy of the report and its attachments for your use. However, if you would like a hard copy of this report please do not hesitate to ask. Entek will be happy to mail the report upon receipt of your request.

Thank you for choosing Entek for your environmental needs. Please call me at (916) 632-6800 if you have any questions regarding this report.

ENTEK

Prepared by:

Blake Howes
Vice President
Cal/OSHA CAC #13-5015
CDPH I/A Certification #3315

Appendices

A. Asbestos Related Documents
B. Lead Related Documents
C. Backup Documentation

C:\Users\bhowes\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Project Letters & Reports\Final Haz Mat Insp Rprt CB Wire ES 12-8-22 Rev1.wpd

ENTEK

APPENDIX A

ASBESTOS RELATED DOCUMENTS

- Bulk Asbestos Analysis Report From Asbestech
- Bulk Asbestos Material Analysis Request Form for Entek
- Asbestos Bulk Sample Location Drawing
- SMAQMD Asbestos Survey Form
- SMAQMD Renovation/Demolition & Survey Notification Form

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-1
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-01A	Black carpet mastic, Administration bldg. middle room	<1 CHRYSOTILE	Tar Binder
01B	Black carpet mastic, Administration bldg. north room	<1 CHRYSOTILE	Tar Binder
01C	Black carpet mastic, Administration bldg. middle room storage room	1-5 CHRYSOTILE	Tar Binder
02A	Beige sandpaper sheet vinyl flooring, Administration bldg. south room restroom	NONE DETECTED	Vinyl Cellulose
	Yellow mastic	NONE DETECTED	Synthetics
03A	Blue/gray 4" base cove, Administration bldg. middle room	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics
03B	Blue/gray 4" base cove, Administration bldg. south hallway	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-2
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-04A	Brown/white 12" acoustic ceiling tile (nailed on), Administration bldg. north room	NONE DETECTED	Cellulose
05A	Yellow carpet mastic, multipurpose bldg. stage area	NONE DETECTED	Synthetics
	Black mastic	NONE DETECTED	Calcite Opaques
05B	Yellow carpet mastic, multipurpose bldg. stage area	NONE DETECTED	Synthetics
	Black mastic	NONE DETECTED	Calcite Opaques
06A	Brown carpet cove mastic, multipurpose bldg. stage area	<1 FIBROUS TREMOLITE	Synthetics Talc
06B	Brown carpet cove mastic, multipurpose bldg. stage area	<1 FIBROUS TREMOLITE	Synthetics Talc
07A	Blue/gray 4" base cove, multipurpose bldg. stage area	NONE DETECTED	Calcite Opaques

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

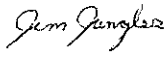
BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-3
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-08A	White drywall , multipurpose bldg. main room ceiling above ceiling tile	NONE DETECTED	Gypsum Fibrous Glass
	White joint compound	<1 CHRYSOTILE	Calcite
	Composite	<1 CHRYSOTILE	Gypsum Fibrous Glass Calcite
08B	White drywall , multipurpose bldg. main room ceiling above ceiling tile	NONE DETECTED	Gypsum Fibrous Glass
	White joint compound	<1 CHRYSOTILE	Calcite
	Composite	<1 CHRYSOTILE	Gypsum Fibrous Glass Calcite
08C	White drywall , multipurpose bldg. kitchen ceiling	NONE DETECTED	Gypsum Fibrous Glass
	White joint compound	<1 CHRYSOTILE	Calcite
	Composite	<1 CHRYSOTILE	Gypsum Fibrous Glass Calcite
09A	Brown/white 12" acoustic ceiling tile, multipurpose bldg. main room ceiling	NONE DETECTED	Cellulose
	Brown mastic tab	NONE DETECTED	Synthetics

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

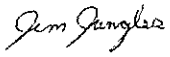
BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-4
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-09B	Brown/white 12" acoustic ceiling tile, multipurpose bldg. main room ceiling	NONE DETECTED	Cellulose
	Brown mastic tab	NONE DETECTED	Synthetics
09C	Brown/white 12" acoustic ceiling tile, multipurpose bldg. kitchen ceiling	NONE DETECTED	Cellulose
	Brown mastic tab	NONE DETECTED	Synthetics
10A	Gray/white mottled sheet vinyl flooring, restroom portable	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Synthetics
	Gray leveler	NONE DETECTED	Calcite
10B	Gray/white mottled sheet vinyl flooring, restroom portable	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Synthetics
11A	White drywall , restroom portable	NONE DETECTED	Gypsum Fibrous Glass
12A	Yellow plastic wall panel mastic, restroom portable	NONE DETECTED	Calcite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-5
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-13A	Gray metal roof mastic, restroom portable	NONE DETECTED	Opaques Polyethylene
14A	Yellow carpet mastic, bldg. 1-4 room 1	NONE DETECTED	Synthetics
	Beige vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	NONE DETECTED	Tar Binder
14B	Yellow carpet mastic, bldg. 1-4 room 2	NONE DETECTED	Synthetics
	Beige vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	1-5 CHRYSOTILE	Tar Binder
14C	Yellow carpet mastic, bldg. 1-4 room 3	NONE DETECTED	Synthetics
	Beige vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	1-5 CHRYSOTILE	Tar Binder
14D	Yellow carpet mastic, bldg. 1-4 room 4	NONE DETECTED	Synthetics
	Beige vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	1-5 CHRYSOTILE	Tar Binder

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-6
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-			
15A	Light gray mottled 12" vinyl floor tile (top layer), bldg. 1-4 room 1	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
15B	Light gray mottled 12" vinyl floor tile (top layer), bldg. 1-4 room 3	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
16A	White vinyl floor tile (bottgom layer), bldg. 1-4 room 1	NONE DETECTED	Calcite
17A	Blue/gray 4" base cove, bldg. 1-4 room 1	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Calcite
17B	Blue/gray 4" base cove, bldg. 1-4 room 3	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics
18A	Gray/white 12" acoustic ceiling tile (nailed on), bldg. 1-4 room 1	NONE DETECTED	Cellulose Pumice
19A	Yellow carpet mastic, bldg. 5-8 room 5	NONE DETECTED	Calcite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-7
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-19B	Yellow carpet mastic, bldg. 5-8 room 6	NONE DETECTED	Calcite
19C	Yellow carpet mastic, bldg. 5-8 room 7	NONE DETECTED	Calcite
19D	Yellow carpet mastic, bldg. 5-8 room 8	NONE DETECTED	Calcite
20A	Gray mottled 12" vinyl floor tile, bldg. 5-8 room 5	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
21A	Blue/gray 4" base cove, bldg. 5-8 room 5	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
21B	Blue/gray 4" base cove, bldg. 5-8 room 7	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
22A	Gray/white 12" acoustic ceiling tile (nailed on), bldg. 5-8 room 5	NONE DETECTED	Cellulose Pumice

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-8
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-23A	Yellow carpet mastic, bldg. 9-12 room 9	NONE DETECTED	Synthetics
	Beige vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	NONE DETECTED	Tar Binder
23B	Yellow carpet mastic, bldg. 9-12 room 10	NONE DETECTED	Synthetics
	Beige vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	NONE DETECTED	Tar Binder
23C	Yellow carpet mastic, bldg. 9-12 room 11	NONE DETECTED	Synthetics
	Beige vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	NONE DETECTED	Tar Binder
23D	Yellow carpet mastic, bldg. 9-12 room 12	NONE DETECTED	Synthetics
	Beige vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	NONE DETECTED	Tar Binder
24A	Gray mottled 12" vinyl floor tile, bldg. 9-12 room 9	NONE DETECTED	Calcite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-9
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-25A	Blue/gray 4" base cove, bldg. 9-12 room 9	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics
25B	Blue/gray 4" base cove, bldg. 9-12 room 11	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics
26A	Brown/white 12" acoustic ceiling tile (nailed on), bldg. 9-12 room 9	NONE DETECTED	Cellulose
27A	Yellow carpet mastic, bldg. K-1 main room	NONE DETECTED	Synthetics
	Black mastic	1-2 CHRYSOTILE	Tar Binder
27B	Black carpet mastic, bldg. K-1 main room	1-5 CHRYSOTILE	Tar Binder

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-10
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-28A	Gray mottled 12" vinyl floor tile, bldg. K-1 main room	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
29A	Blue/gray 4" base cove, bldg. K-1 main room	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
30A	Brown/white 12" acoustic ceiling tile (nailed on), bldg. K-1 main room	NONE DETECTED	Cellulose
31A	Yellow carpet mastic, portable room 13	NONE DETECTED	Synthetics
32A	Gray mottled 12" vinyl floor tile (top layer), portable room 13	NONE DETECTED	Calcite
33A	Brown vinyl floor tile (bottom layer), portable room 13	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics
34A	Blue/gray 4" base cove, portable room 13	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-11
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-35A	Brown 4" base cove, portable room 13	NONE DETECTED	Opaques
	White mastic	NONE DETECTED	Calcite
36A	Gray vinyl floor tile, bldg. 14-17 room 15	1-2 CHRYSOTILE	Calcite
	Black mastic	1-5 CHRYSOTILE	Tar Binder
36B	Yellow carpet mastic, bldg. 14-17 room 16	NONE DETECTED	Synthetics
	Gray vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	1-5 CHRYSOTILE	Tar Binder
36C	Yellow carpet mastic, bldg. 14-17 room 17	NONE DETECTED	Synthetics
	Gray vinyl floor tile	1-2 CHRYSOTILE	Calcite
	Black mastic	1-2 CHRYSOTILE	Tar Binder
37A	Yellow carpet mastic, bldg. 14-17 room 14	NONE DETECTED	Synthetics
	Black mastic	NONE DETECTED	Tar Binder

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

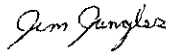
LAB JOB # 70021-12
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-38A	Gray mottled 12" vinyl floor tile (top layer), bldg. 14-17 room 15	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
38B	Gray mottled 12" vinyl floor tile (top layer), bldg. 14-17 room 17	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
39A	Gray vinyl floor tile (bottom layer), bldg. 14-17 room 17	NONE DETECTED	Calcite
	Black mastic 1	NONE DETECTED	Tar Binder
	Black mastic 2	1-5 CHRYSOTILE	Tar Binder
40A	Brown sheet vinyl flooring, bldg. 14-17 room 14 restroom	15-20 CHRYSOTILE	Vinyl Cellulose
41A	Blue/gray 4" base cove, bldg. 14-17 room 15	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics Wollastonite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES



ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

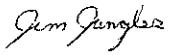
BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-13
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-41B	Blue/gray 4" base cove, bldg. 14-17 room 14	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics Wollastonite
42A	White drywall , bldg. 14-17 room 15 HVAC closet	NONE DETECTED	Gypsum Fibrous Glass
	White joint compound	NONE DETECTED	Calcite
43A	Gray/white 12" acoustic ceiling tile (nailed on), bldg. 14-17 room 14	NONE DETECTED	Cellulose Pumice
43B	Brown/white 12" acoustic ceiling tile (nailed on), bldg. 14-17 room 17	NONE DETECTED	Cellulose
44A	Black composition asphalt rolled roofing, bldg. 14-17 east roof	NONE DETECTED	Tar Binder Fibrous Glass
44B	Black composition asphalt rolled roofing, bldg. 14-17 middle roof	NONE DETECTED	Tar Binder Fibrous Glass
	Gray roofing	NONE DETECTED	Cellulose Pumice

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-14
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-44C	Black composition asphalt rolled roofing, bldg. 14-17 west roof	NONE DETECTED	Tar Binder Fibrous Glass
	Gray roofing	NONE DETECTED	Cellulose Pumice
45A	Black roof jack mastic, bldg. 14-17 west roof	NONE DETECTED	Tar Binder
	Silver paint	NONE DETECTED	Opaques
45B	Black roof jack mastic, bldg. 14-17 east roof	NONE DETECTED	Tar Binder
	Silver paint	NONE DETECTED	Opaques
46A	Yellow carpet mastic, bldg. 18-19 room 18	NONE DETECTED	Synthetics
	Beige vinyl floor tile	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder Polyethylene
46B	Yellow carpet mastic, bldg. 18-19 room 19	NONE DETECTED	Synthetics
	Beige vinyl floor tile	NONE DETECTED	Calcite
	Black mastic	1-2 CHRYSOTILE	Tar Binder

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-15
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-47A	Gray mottled 12" vinyl floor tile (top layer) bldg. 18-19 room 18	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
48A	Beige vinyl floor tile (bottom layer) bldg. 18-19 room 18	NONE DETECTED	Calcite
	Black mastic 1	NONE DETECTED	Tar Binder
	Black mastic 2	NONE DETECTED	Tar Binder Polyethylene
49A	Blue/gray 4" base cove, bldg. 18-19 room 18	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	<1 FIBROUS TREMOLITE	Synthetics Wollastonite
49B	Blue/gray 4" base cove, bldg. 18-19 room 19	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	Brown mastic	NONE DETECTED	Synthetics Wollastonite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-16
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-50A	Yellow carpet mastic, portable room 20	NONE DETECTED	Synthetics
	White leveler	NONE DETECTED	Gypsum
50B	Yellow carpet mastic, portable room 21	NONE DETECTED	Synthetics
	White leveler	NONE DETECTED	Gypsum
51A	Light brown streaked 12" vinyl floor tile, portable room 20	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
51B	Light brown streaked 12" vinyl floor tile, portable room 21	NONE DETECTED	Calcite
	Gray mastic	NONE DETECTED	Synthetics
52A	Brown 4" base cove, portable room 20	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
	White wallpaper	NONE DETECTED	Vinyl Cellulose
	Yellow glue	NONE DETECTED	Synthetics

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-17
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-52B	Brown 4" base cove, portable room 21	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
53A	Gray/white 2'x4' ceiling panel, portable room 21	NONE DETECTED	Cellulose Pumice
54A	Yellow carpet mastic, portable room 22	NONE DETECTED	Synthetics
55A	Light gray mottled 12" vinyl floor tile, portable room 22	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
56A	Brown 4" base cove, portable room 22	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
57A	Yellow carpet mastic, portable room 23	NONE DETECTED	Synthetics
58A	Light brown streaked 12" vinyl floor tile, portable room 23	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-18
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-59A	Brown 4" base cove, portable room 23	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
60A	Gray/white 2'x4' ceiling panel, portable room 23	NONE DETECTED	Cellulose Pumice
61A	Yellow carpet mastic, portable room 24	NONE DETECTED	Synthetics
61B	Yellow carpet mastic, portable room 25	NONE DETECTED	Synthetics
	White leveler	NONE DETECTED	Calcite
61C	Yellow carpet mastic, portable room 26	NONE DETECTED	Synthetics
62A	Gray mottled 12" vinyl floor tile, portable room 24	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
62B	Gray mottled 12" vinyl floor tile, portable room 25	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

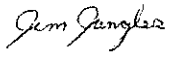
BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-19
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-62C	Gray mottled 12" vinyl floor tile, portable room 26	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
63A	Blue/gray 4" base cove, portable room 24	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Synthetics
63B	Blue/gray 4" base cove, portable room 25	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Synthetics
63C	Blue/gray 4" base cove, portable room 26	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Synthetics
64A	Yellow carpet mastic, portable room 27	NONE DETECTED	Synthetics
64B	Yellow carpet mastic, portable room 28	NONE DETECTED	Synthetics

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-20
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-65A	Gray mottled 12" vinyl floor tile, portable room 27	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
65B	Gray mottled 12" vinyl floor tile, portable room 28	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
66A	Blue/gray 4" base cove, portable room 27	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Synthetics
66B	Blue/gray 4" base cove, portable room 28	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Synthetics
67A	Yellow carpet mastic, portable room 33	NONE DETECTED	Synthetics
	White leveler	NONE DETECTED	Gypsum
68A	Gray mottled 12" vinyl floor tile (top layer), portable room 33	NONE DETECTED	Calcite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-21
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-69A	White vinyl floor tile (bottom layer), portable room 33	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
70A	Blue/gray 4" base cove, portable room 33	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
71A	Gray 2'x4' ceiling panel, portable room 33	NONE DETECTED	Cellulose Fibrous Glass
72A	Yellow carpet mastic, preschool portable west area	NONE DETECTED	Synthetics
72B	Yellow carpet mastic, preschool portable east area	NONE DETECTED	Synthetics
	White leveler	NONE DETECTED	Calcite
73A	Gray mottled 12" vinyl floor tile (top layer), preschool portable west area near restrooms	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
	Black mastic	NONE DETECTED	Tar Binder

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-22
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-73B	Gray mottled 12" vinyl floor tile (top layer), preschool portable east area	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
	Black mastic	NONE DETECTED	Tar Binder
74A	Gray vinyl floor tile (bottom layer), preschool portable west area near restrooms	NONE DETECTED	Vinyl Cellulose
	Black mastic 1	NONE DETECTED	Tar Binder
	Black mastic 2	NONE DETECTED	Tar Binder
74B	Gray vinyl floor tile (bottom layer), preschool portable east area	NONE DETECTED	Vinyl Cellulose
	Yellow mastic	NONE DETECTED	Synthetics
75A	Blue/gray 4" base cove, preschool portable west area	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Calcite
75B	Blue/gray 4" base cove, preschool portable west area near restrooms	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 70021-23
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/4/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-75C	Blue/gray 4" base cove, preschool portable east area	NONE DETECTED	Calcite Opaques
	Yellow mastic	NONE DETECTED	Calcite

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, California 95670
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
22-6437 Sacramento City USD
Clayton B Wire Elementary School
5100 El Paraiso Ave., Sacramento , Ca

BULK ASBESTOS ANALYSIS REPORT

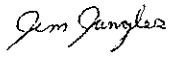
LAB JOB # 70031
Date/Time Collected: 11/29-30/22
Date Received: 11/30/22

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 12/7/22

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-22-6437-08A	White drywall/ joint compound composite , multipurpose bldg. main room ceiling above ceiling tile	TRACE CHRYSOTILE	Gypsum Fibrous Glass Calcite
08B	White drywall/ joint compound composite , multipurpose bldg. main room ceiling above ceiling tile	TRACE CHRYSOTILE	Gypsum Fibrous Glass Calcite
08C	White drywall/ joint compound composite , multipurpose bldg. kitchen ceiling	<1 CHRYSOTILE	Gypsum Fibrous Glass Calcite

NOTE: These samples were analyzed by quantitative Point Counting using a Chalkley Point Array over 400 non-empty points.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES



ENTEK

70021

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Job Number: 22-6437

Client Name: Sacramento City Unified School District

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

Lab: Asbestech

Collected by: Blake Howes

Turnaround Time: Monday, 12-5-22 by 5:00 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-01A	Carpet Mastic - Administration Building, Middle Room
ECG-22-6437-01B	Carpet Mastic - Administration Building, North Room
ECG-22-6437-01C	Carpet Mastic - Administration Building, Middle Room Storage Room
ECG-22-6437-02A	Beige Sandpaper Sheet Vinyl Flooring & Mastic - Administration Building, South Room Restroom
ECG-22-6437-03A	4" Blue/Gray Base Cove & Mastic - Administration Building, Middle Room
ECG-22-6437-03B	4" Blue/Gray Base Cove & Mastic - Administration Building, South Hallway
ECG-22-6437-04A	12" Acoustic Ceiling Tile (Nailed On) - Administration Building, North Room
ECG-22-6437-05A	Carpet Mastic - Multi-Purpose Building, Stage Area
ECG-22-6437-05B	Carpet Mastic - Multi-Purpose Building, Stage Area
ECG-22-6437-06A	Carpet Cove Mastic - Multi-Purpose Building, Stage Area
ECG-22-6437-06B	Carpet Cove Mastic - Multi-Purpose Building, Stage Area
ECG-22-6437-07A	4" Blue/Gray Base Cove & Mastic - Multi-Purpose Building, Stage Area
ECG-22-6437-08A	Drywall & Joint Compound - Multi-Purpose Building, Main Room Ceiling Above Ceiling Tile
ECG-22-6437-08B	Drywall & Joint Compound - Multi-Purpose Building, Main Room Ceiling Above Ceiling Tile

Delivered by: [signature] **Date:** 11/30/22 **Time:** 12:55 AM/PM

Received by: [signature] **Date:** 11/30/22 **Time:** 12:55 AM/PM

70021

ENTEK

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Job Number: 22-6437

Client Name: Sacramento City Unified School District

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

Lab: Asbestech

Collected by: Blake Howes

Turnaround Time: Monday, 12-5-22 by 5:00 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-08C	Drywall & Joint Compound - Multi-Purpose Building, Kitchen Ceiling
ECG-22-6437-09A	12" Acoustic Ceiling Tile & Brown Mastic Tab - Multi-Purpose Building, Main Room Ceiling
ECG-22-6437-09B	Multi-Purpose Building, Main Room Ceiling 12" Acoustic Ceiling Tile & Brown Mastic Tab - Multi-Purpose Building, Main Room Ceiling
ECG-22-6437-09C	12" Acoustic Ceiling Tile & Brown Mastic Tab - Multi-Purpose Building, Kitchen Ceiling
ECG-22-6437-10A	Gray/White Mottled Sheet Vinyl Flooring & Mastic - Restroom Portable
ECG-22-6437-10B	Gray/White Mottled Sheet Vinyl Flooring & Mastic - Restroom Portable
ECG-22-6437-11A	Drywall (No Joint Compound) - Restroom Portable
ECG-22-6437-12A	Plastic Wall Panel Mastic - Restroom Portable
ECG-22-6437-13A	Metal Roof Mastic - Restroom Portable
ECG-22-6437-14A	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 1-4, Room 1
ECG-22-6437-14B	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 1-4, Room 2
ECG-22-6437-14C	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 1-4, Room 3

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:55 AM/PM

Received by: _____ **Date:** 11/30/22 **Time:** 1255 AM/PM

70021

ENTEK

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Lab: Asbestech

Job Number: 22-6437

Collected by: Blake Howes

Client Name: Sacramento City Unified School District

Turnaround Time: Monday, 12-5-22 by 5:00 pm

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-14D	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 1-4, Room 4
ECG-22-6437-15A	Light Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Building 1-4, Room 1
ECG-22-6437-15B	Light Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Building 1-4, Room 3
ECG-22-6437-16A	White Vinyl Floor Tile (Bottom Layer) & Mastic - Building 1-4, Room 1
ECG-22-6437-17A	4" Blue/Gray Base Cove & Mastic - Building 1-4, Room 1
ECG-22-6437-17B	4" Blue/Gray Base Cove & Mastic - Building 1-4, Room 3
ECG-22-6437-18A	12" Acoustic Ceiling Tile (Nailed On) - Building 1-4, Room 1
ECG-22-6437-19A	Yellow Carpet Mastic - Building 5-8, Room 5
ECG-22-6437-19B	Yellow Carpet Mastic - Building 5-8, Room 6
ECG-22-6437-19C	Yellow Carpet Mastic - Building 5-8, Room 7
ECG-22-6437-19D	Yellow Carpet Mastic - Building 5-8, Room 8
ECG-22-6437-20A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Building 5-8, Room 5
ECG-22-6437-21A	4" Blue/Gray Base Cove & Mastic - Building 5-8, Room 5
ECG-22-6437-21B	4" Blue/Gray Base Cove & Mastic - Building 5-8, Room 7

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:55 AM/PM

Received by: _____ **Date:** 11/30/22 **Time:** 1256 AM/PM

ENTEK 10021

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Job Number: 22-6437

Client Name: Sacramento City Unified School District

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

Lab: Asbestech

Collected by: Blake Howes

Turnaround Time: Monday, 12-5-22 by 5:00 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-22A	12" Acoustic Ceiling Tile (Nailed On) - Building 5-8, Room 5
ECG-22-6437-23A	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 9-12, Room 9
ECG-22-6437-23B	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 9-12, Room 10
ECG-22-6437-23C	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 9-12, Room 11
ECG-22-6437-23D	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 9-12, Room 12
ECG-22-6437-24A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Building 9-12, Room 9
ECG-22-6437-25A	4" Blue/Gray Base Cove & Mastic - Building 9-12, Room 9
ECG-22-6437-25B	4" Blue/Gray Base Cove & Mastic - Building 9-12, Room 11
ECG-22-6437-26A	12" Acoustic Ceiling Tile (Nailed On) - Building 9-12, Room 9
ECG-22-6437-27A	Yellow/Black Carpet Mastic - Building K1, Main Room
ECG-22-6437-27B	Yellow/Black Carpet Mastic - Building K1, Main Room
ECG-22-6437-28A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Building K1, Main Room
ECG-22-6437-29A	4" Blue/Gray Base Cove & Mastic - Building K1, Main Room

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:56 AM/PM

Received by: _____ **Date:** 11/30/22 **Time:** 1256 AM/PM

70321

ENTEK

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Lab: Asbestech

Job Number: 22-6437

Collected by: Blake Howes

Client Name: Sacramento City Unified School District

Turnaround Time: Monday, 12-5-22 by 5:00 pm

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-30A	12" Acoustic Ceiling Tile (Nailed On) - Building K1, Main Room
ECG-22-6437-31A	Carpet Mastic - Portable Room 13
ECG-22-6437-32A	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Portable Room 13
ECG-22-6437-33A	Brown Vinyl Floor Tile (Bottom Layer) & Mastic - Portable Room 13
ECG-22-6437-34A	4" Blue/Gray Base Cove & Mastic - Portable Room 13
ECG-22-6437-35A	4" Brown Base Cove & Mastic - Portable Room 13
ECG-22-6437-36A	Yellow Carpet Mastic, Gray Vinyl Floor Tile, Black Mastic - Building 14-17, Room 15
ECG-22-6437-36B	Yellow Carpet Mastic, Gray Vinyl Floor Tile, Black Mastic - Building 14-17, Room 16
ECG-22-6437-36C	Yellow Carpet Mastic, Gray Vinyl Floor Tile, Black Mastic - Building 14-17, Room 17
ECG-22-6437-37A	Yellow/Black Carpet Mastic - Building 14-17, Room 14
ECG-22-6437-38A	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Building 14-17, Room 15
ECG-22-6437-38B	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Building 14-17, Room 17

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:56 AM/PM

Received by: _____ **Date:** 11 30 22 **Time:** 2:56 AM/PM

10021

ENTEK

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Lab: Asbestech

Job Number: 22-6437

Collected by: Blake Howes

Client Name: Sacramento City Unified School District

Turnaround Time: Monday, 12-5-22 by 5:00 pm

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-39A	Vinyl Floor Tile (Bottom Layer) & Mastic - Building 14-17, Room 17
ECG-22-6437-40A	Brown Sheet Vinyl Flooring & Mastic - Building 14-17, Room 14 Restroom
ECG-22-6437-41A	4" Blue/Gray Base Cove & Mastic - Building 14-17, Room 15
ECG-22-6437-41B	4" Blue/Gray Base Cove & Mastic - Building 14-17, Room 14
ECG-22-6437-42A	Drywall & Joint Compound - Building 14-17, Room 15 HVAC Closet
ECG-22-6437-43A	12" Acoustic Ceiling Tile (Nailed On) - Building 14-17, Room 14
ECG-22-6437-43B	12" Acoustic Ceiling Tile (Nailed On) - Building 14-17, Room 17
ECG-22-6437-44A	Composition Asphalt Rolled Roofing - Building 14-17, East Roof
ECG-22-6437-44B	Composition Asphalt Rolled Roofing - Building 14-17, Middle Roof
ECG-22-6437-44C	Composition Asphalt Rolled Roofing - Building 14-17, West Roof
ECG-22-6437-45A	Roof Jack Mastic - Building 14-17, West Roof
ECG-22-6437-45B	Roof Jack Mastic - Building 14-17, East Roof
ECG-22-6437-46A	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 18-19, Room 18
ECG-22-6437-46B	Yellow Carpet Mastic, Beige Vinyl Floor Tile, Black Mastic - Building 18-19, Room 19

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:57 AM/PM

Received by: _____ **Date:** 11 30 22 **Time:** 257 AM/PM

10021

ENTEK

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Lab: Asbestech

Job Number: 22-6437

Collected by: Blake Howes

Client Name: Sacramento City Unified School District

Turnaround Time: Monday, 12-5-22 by 5:00 pm

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-47A	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Building 18-19, Room 18
ECG-22-6437-48A	Beige Vinyl Floor Tile (Bottom Layer) & Mastic - Building, 18-19, Room 18
ECG-22-6437-49A	4" Blue/Gray Base Cove & Mastic - Building, 18-19, Room 18
ECG-22-6437-49B	4" Blue/Gray Base Cove & Mastic - Building, 18-19, Room 19
ECG-22-6437-50A	Yellow Carpet Mastic - Portable Room 20
ECG-22-6437-50B	Yellow Carpet Mastic - Portable Room 21
ECG-22-6437-51A	Light Brown Streaked 12" Vinyl Floor Tile & Mastic - Portable Room 20
ECG-22-6437-51B	Light Brown Streaked 12" Vinyl Floor Tile & Mastic - Portable Room 21
ECG-22-6437-52A	4" Brown Base Cove & Mastic - Portable Room 20
ECG-22-6437-52B	4" Brown Base Cove & Mastic - Portable Room 21
ECG-22-6437-53A	2'x'4 Ceiling Panel - Portable Room 21
ECG-22-6437-54A	Yellow Carpet Mastic - Portable Room 22
ECG-22-6437-55A	Light Gray Mottled 12" Vinyl Floor Tile & Mastic - Portable Room 22
ECG-22-6437-56A	4" Brown Base Cove & Mastic - Portable Room 22
ECG-22-6437-57A	Yellow Carpet Mastic - Portable Room 23

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:57 AM/PM

Received by: _____ **Date:** 11/30/22 **Time:** 1757 AM/PM

70021

ENTEK

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Job Number: 22-6437

Client Name: Sacramento City Unified School District

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

Lab: Asbestech

Collected by: Blake Howes

Turnaround Time: Monday, 12-5-22 by 5:00 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-58A	Light Brown Streaked 12" Vinyl Floor Tile & Mastic - Portable Room 23
ECG-22-6437-59A	4" Brown Base Cove & Mastic - Portable Room 23
ECG-22-6437-60A	2'x4' Ceiling Panel - Portable Room 23
ECG-22-6437-61A	Yellow Carpet Mastic - Portable Room 24
ECG-22-6437-61B	Yellow Carpet Mastic - Portable Room 25
ECG-22-6437-61C	Yellow Carpet Mastic - Portable Room 26
ECG-22-6437-62A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portable Room 24
ECG-22-6437-62B	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portable Room 25
ECG-22-6437-62C	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portable Room 26
ECG-22-6437-63A	4" Blue/Gray Base Cove & Mastic - Portable Room 24
ECG-22-6437-63B	4" Blue/Gray Base Cove & Mastic - Portable Room 25
ECG-22-6437-63C	4" Blue/Gray Base Cove & Mastic - Portable Room 26
ECG-22-6437-64A	Yellow Carpet Mastic - Portable Room 27
ECG-22-6437-64B	Yellow Carpet Mastic - Portable Room 28
ECG-22-6437-65A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portable Room 27

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:57 AM/PM

Received by: _____ **Date:** 11/30/22 **Time:** 12:57 AM/PM

78021

ENTEK

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Lab: Asbestech

Job Number: 22-6437

Collected by: Blake Howes

Client Name: Sacramento City Unified School District

Turnaround Time: Monday, 12-5-22 by 5:00 pm

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-65B	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portable Room 28
ECG-22-6437-66A	4" Blue/Gray Base Cove & Mastic - Portable Room 27
ECG-22-6437-66B	4" Blue/Gray Base Cove & Mastic - Portable Room 28
ECG-22-6437-67A	Yellow Carpet Mastic - Portable Room 33
ECG-22-6437-68A	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Portable Room 33
ECG-22-6437-69A	White Vinyl Floor Tile & Mastic (Bottom Layer) - Portable Room 33
ECG-22-6437-70A	4" Blue/Gray Base Cove & Mastic - Portable Room 33
ECG-22-6437-71A	2'x4' Ceiling Panel - Portable Room 33
ECG-22-6437-72A	Yellow Carpet Mastic - Preschool Portable, West Area
ECG-22-6437-72B	Yellow Carpet Mastic - Preschool Portable, East Area
ECG-22-6437-73A	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Preschool Portable, West Area Near Restrooms
ECG-22-6437-73B	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Preschool Portable, East Area
ECG-22-6437-74A	Gray Vinyl Floor Tile & Mastic (Bottom Layer) - Preschool Portable, West Area Near Restrooms
ECG-22-6437-74B	Gray Vinyl Floor Tile & Mastic (Bottom Layer) - Preschool Portable, East Area

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:57 AM/PM

Received by: _____ **Date:** 11/30/22 **Time:** 257 AM/PM

ENTEK

70021

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29-30, 2022

Lab: Asbestech

Job Number: 22-6437

Collected by: Blake Howes

Client Name: Sacramento City Unified School District

Turnaround Time: Monday, 12-5-22 by 5:00 pm

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

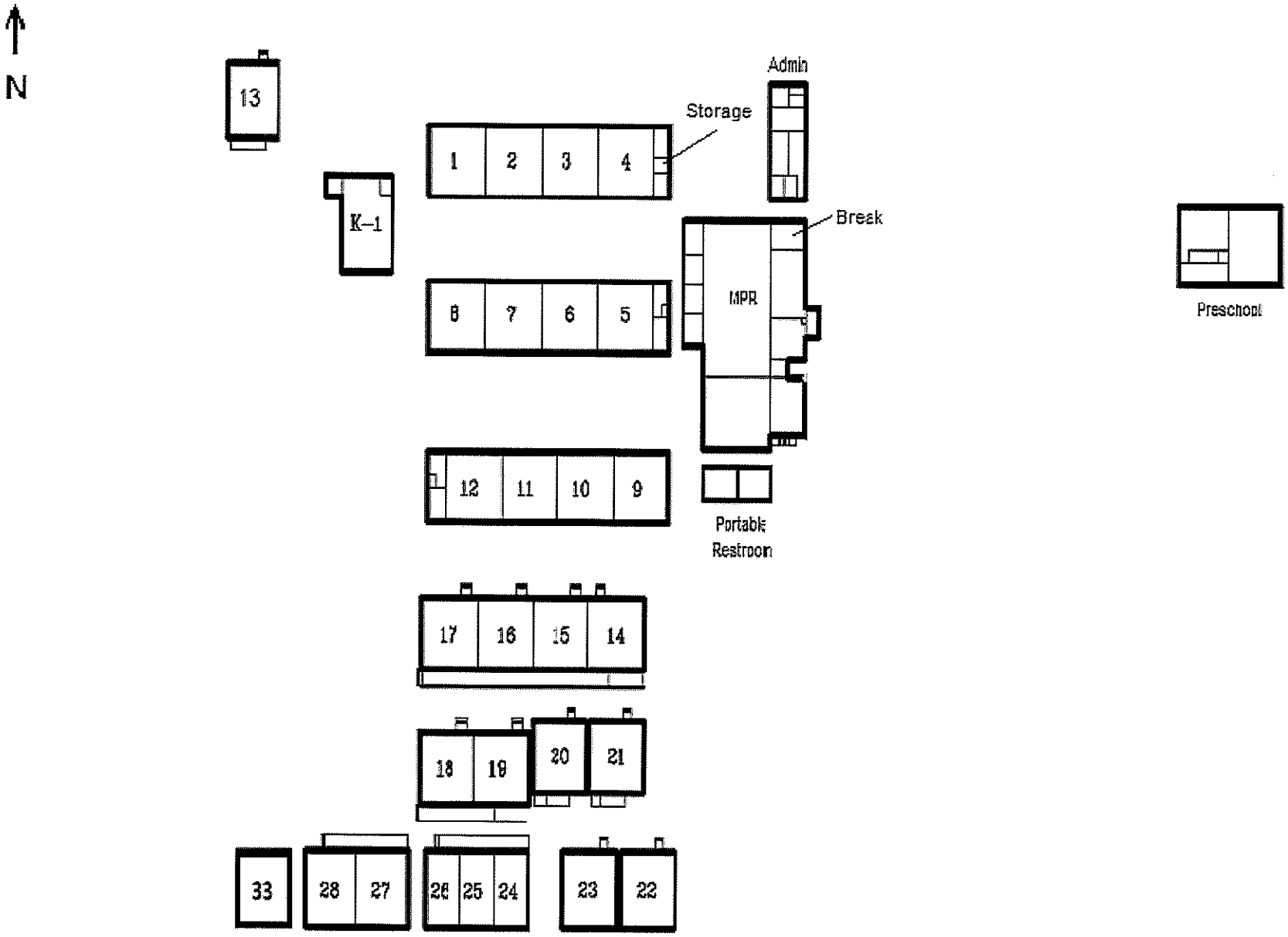
Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-75A	4" Blue/Gray Base Cove & Mastic - Preschool Portable, West Area
ECG-22-6437-75B	4" Blue/Gray Base Cove & Mastic - Preschool Portable, West Area Near Restrooms
ECG-22-6437-75C	4" Blue/Gray Base Cove & Mastic - Preschool Portable, East Area

C:\Users\bhowes\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Bulk Asb\Bulk Request 11-30-22.wpd

Delivered by: _____ **Date:** 11/30/22 **Time:** 12:57 AM/PM

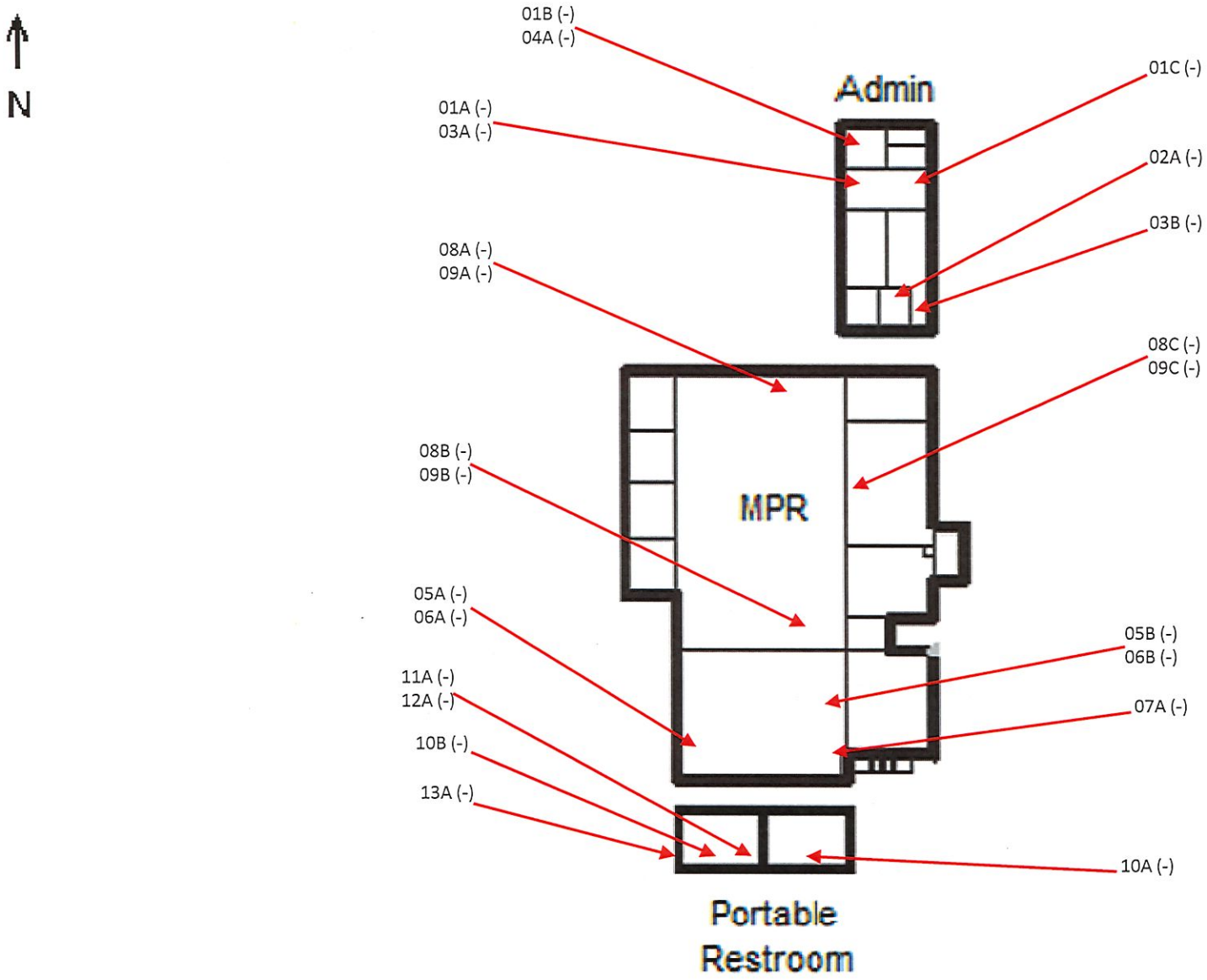
Received by: _____ **Date:** 11/30/22 **Time:** 1257 AM/PM



Sacramento City Unified School District
Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

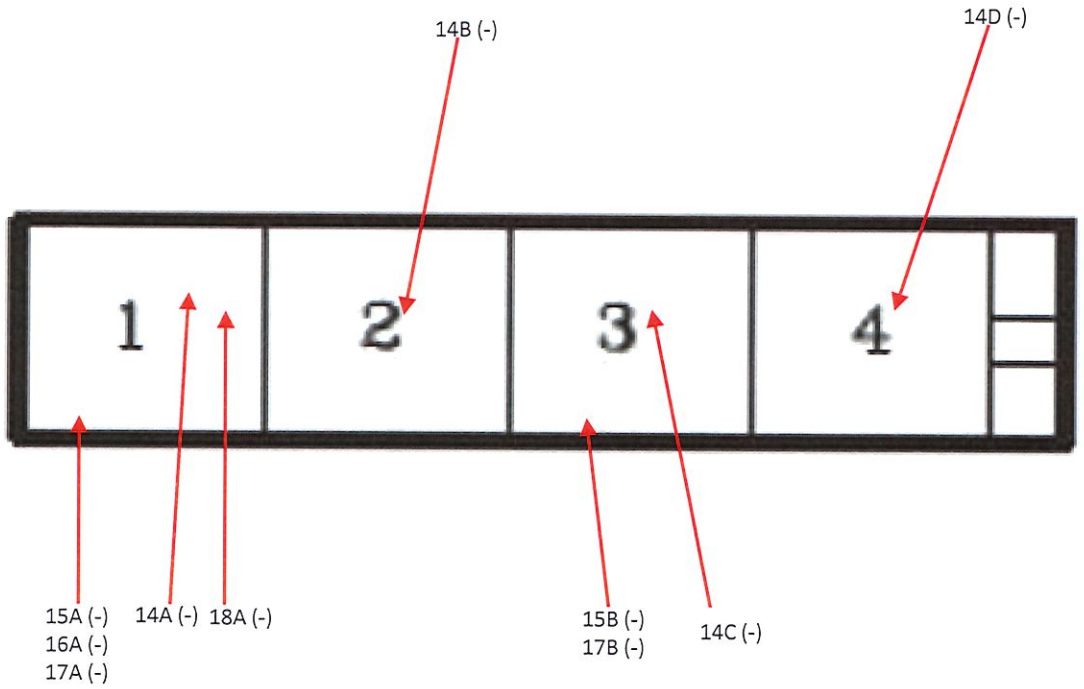
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677
Map Not to Scale

Site Plan
Survey by Blake Howes
On November 29-30, 2022
Project Number 22-6437



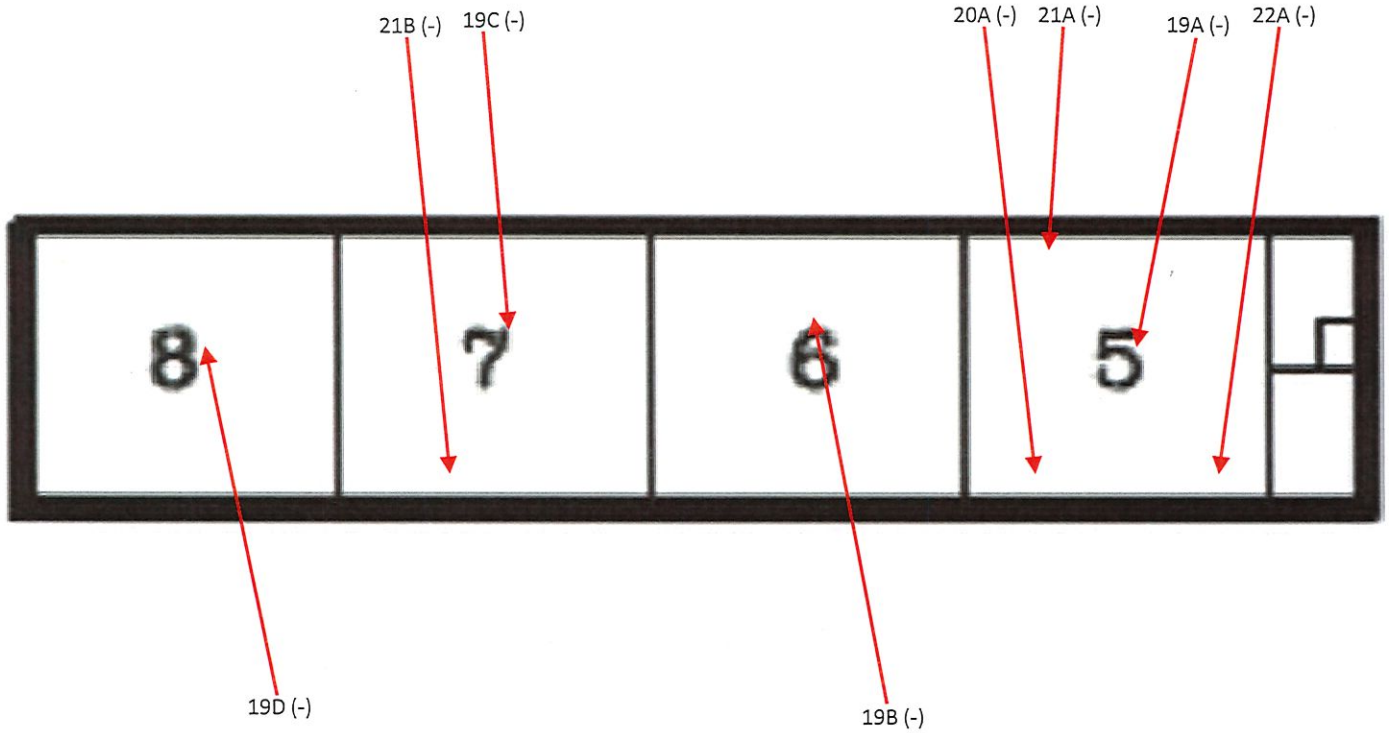
Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\ Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Asbestos Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437

N



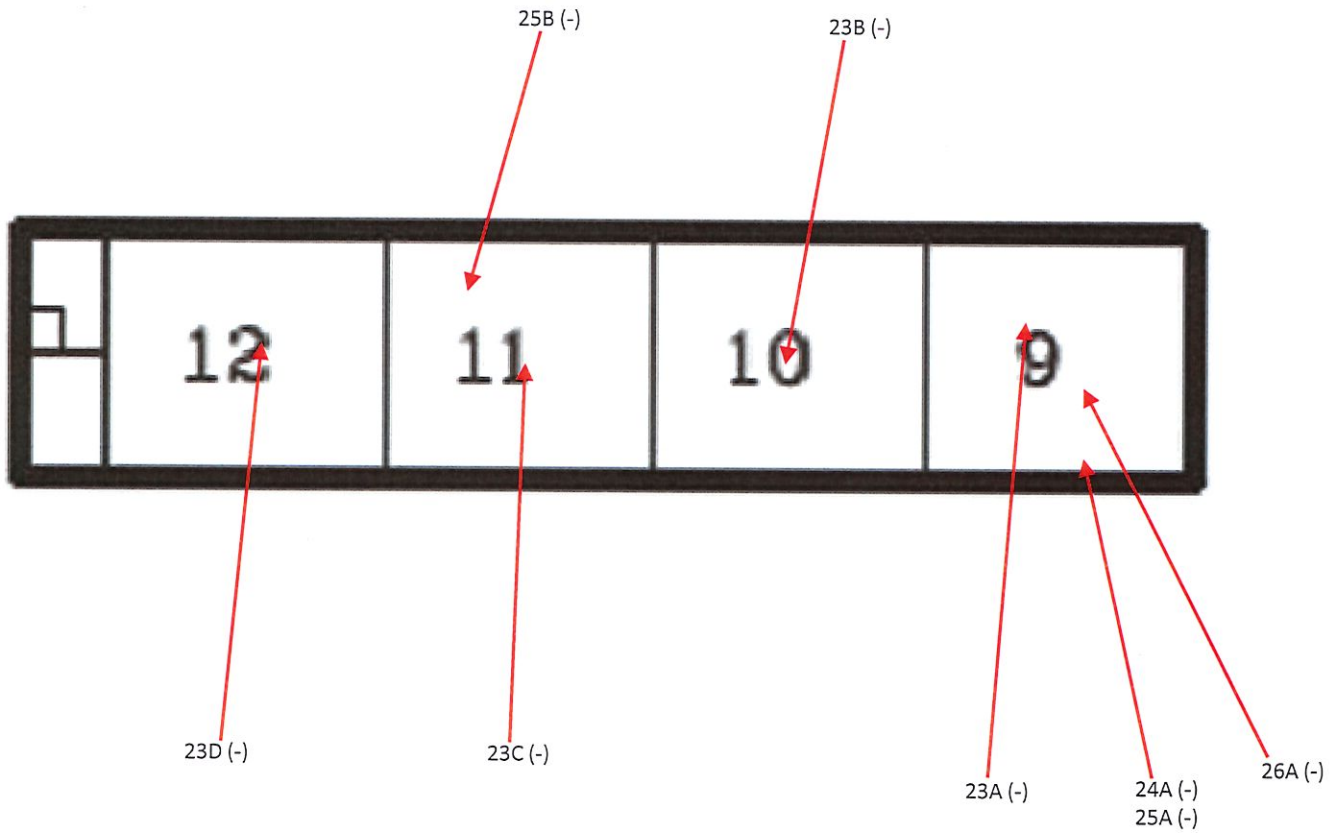
Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Asbestos Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437

N



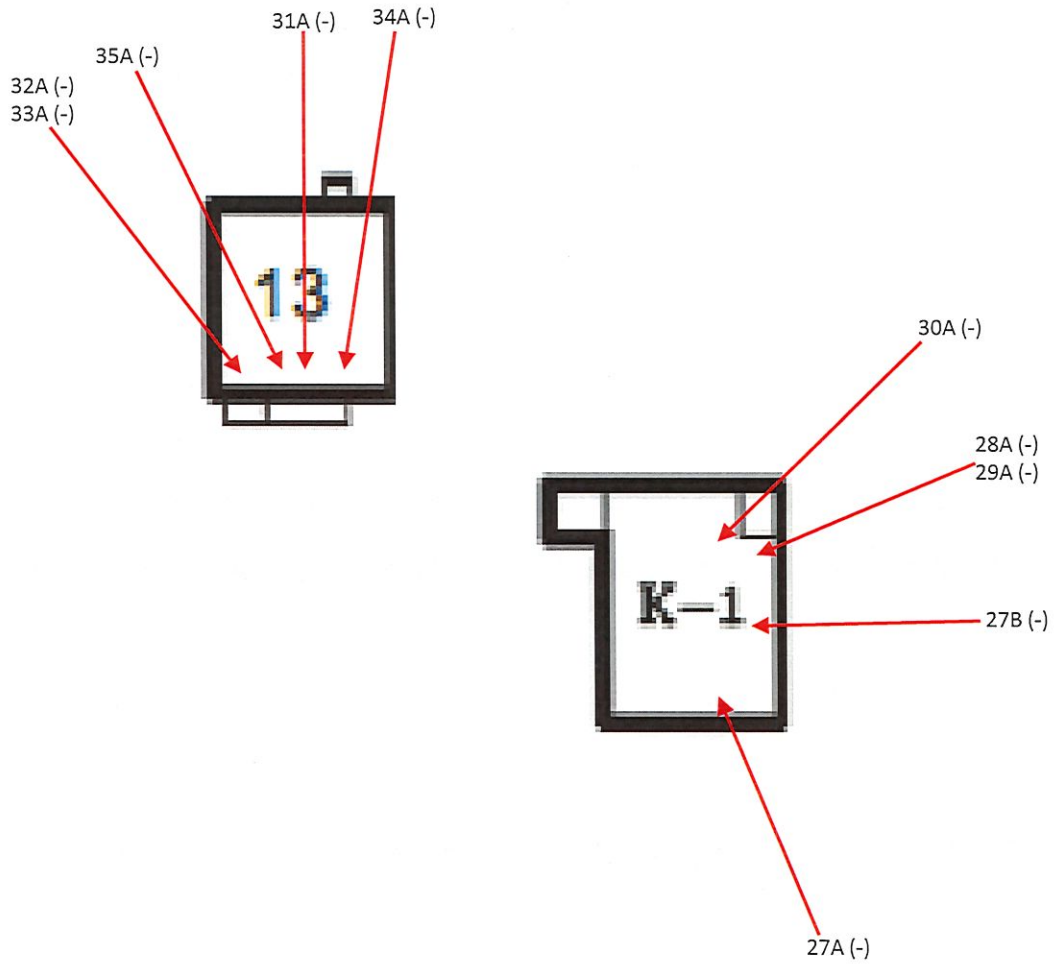
Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Asbestos Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437

N



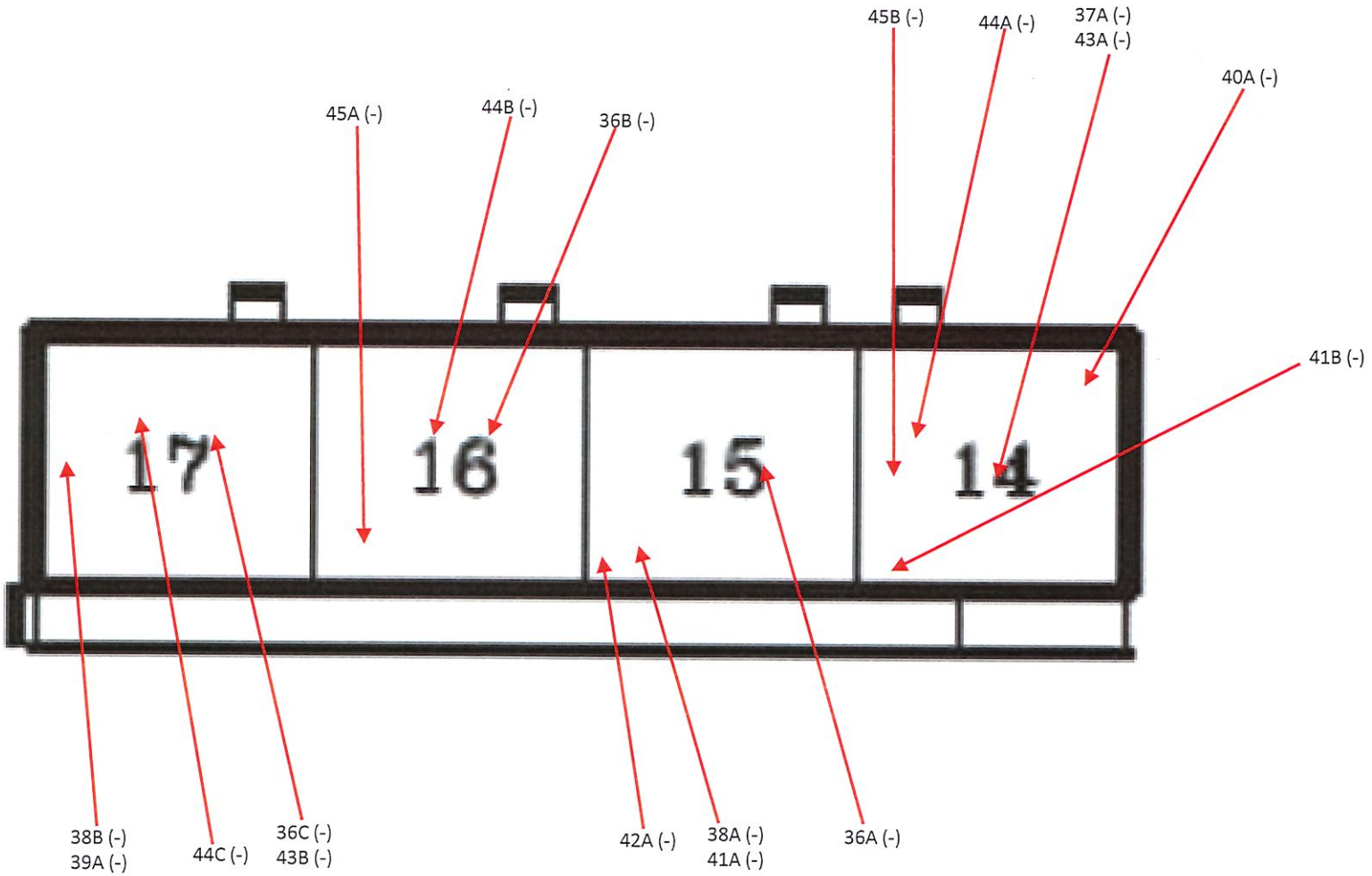
Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Asbestos Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437

N



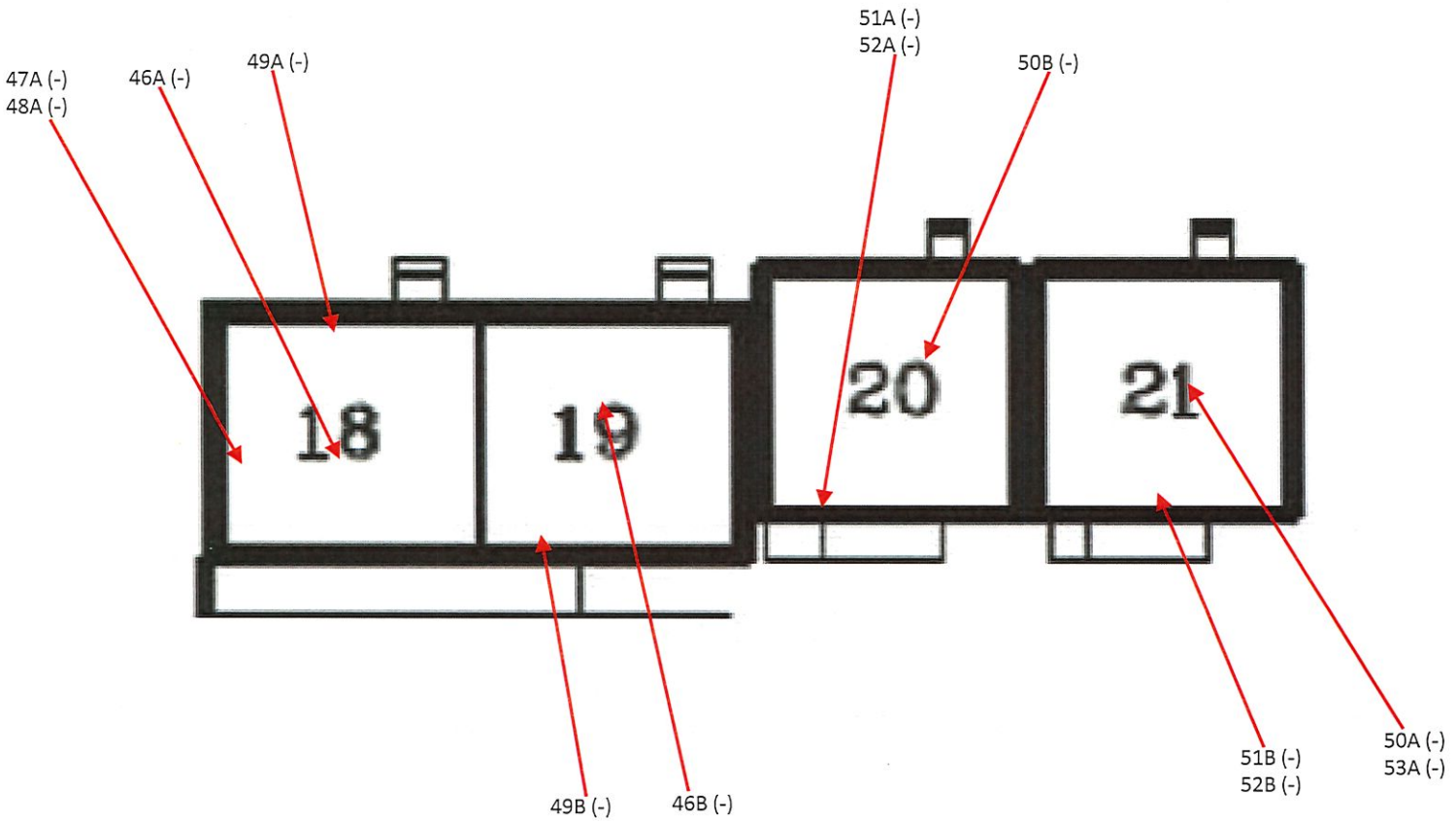
Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Asbestos Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437

N

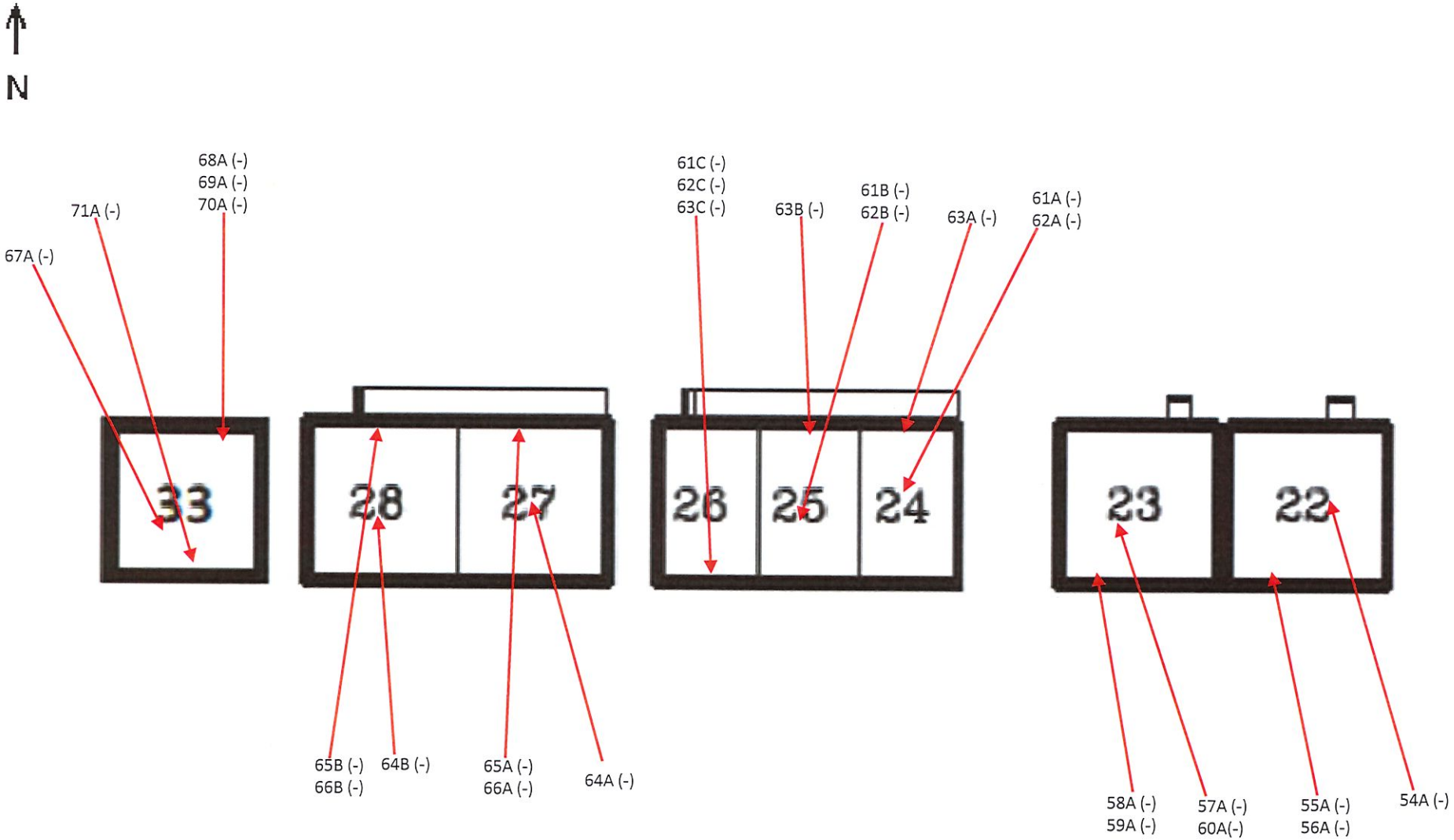


Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Asbestos Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437

N



Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\ Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Asbestos Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437



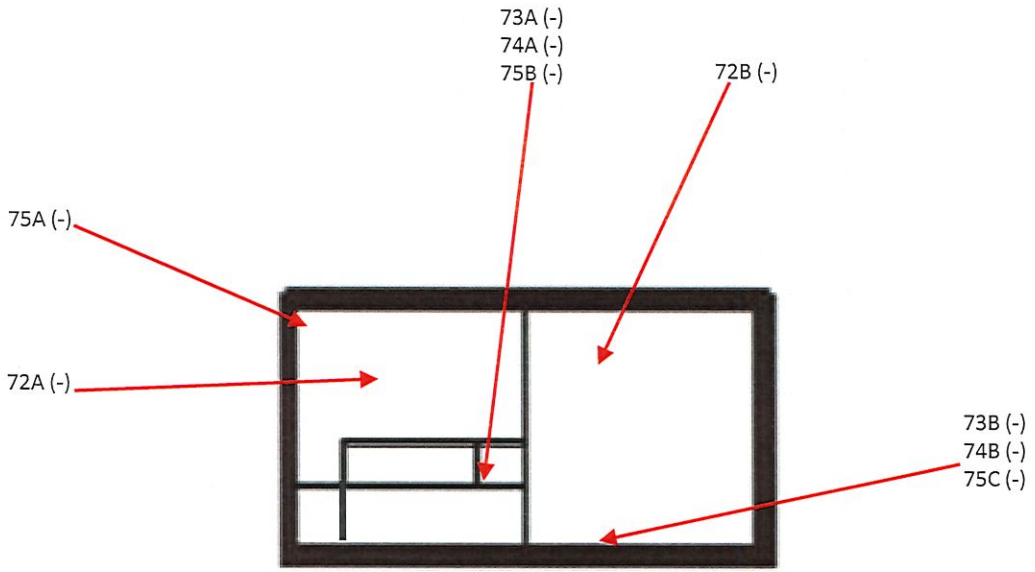
Sacramento City Unified School District
Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677
Map Not to Scale

Cloud\Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings

Asbestos Bulk Sample Locations
Collected by Blake Howes
On November 29-30, 2022
Project Number 22-6437

N



Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Asbestos Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Asbestos Survey Form
(See Instructions)

777 12th Street, 3rd Floor
Sacramento, CA 95814
Office (916) 874-4800
Fax (916) 874-4899
Email:
asbestos@airquaility.org

1. Purpose of Survey		Renovation		Demolition

2. Facility Information

Project Area(s) Description	Clayton B Wire Elementary - Flooring Throughout, Rooms 14-17 Full, Portable Restroom, MPR Ceiling & Break Room		
Address: 5100 El Paraiso Avenue		City: Sacramento	# of Structures: 16

3. Owner Information

Name: Sacramento City Unified School District			
Address: 5735 47th Street		City/State: Sacramento California	Zip: 95824
Contact: Chris Ralston	Phone: 916-395-3970	Fax:	Email: chris-ralston@scusd.edu

4. Consultant Information — **Survey Date(s): November 29-30, 2022**

Company Name: Entek Consulting Group, Inc.			
Name: Blake Howes			DOSH #: 13-5015
Address: 4200 Rocklin Road, Suite 7		City/State: Rocklin, California	Zip: 95677
Phone: (916) 632-6800	Fax: (916) 632-6812	Email: bhowes@entekgroup.com	Signature: Blake Howes

5. Client Information (If different than owner) ☐ General Contractor ☐ Insurance Company ☐ Architect ☐ Property Manager ☐ Other _____

Name			
Address	City/State		Zip
Contact	Phone	Fax	Email

6. Have all of the suspect materials that will be disturbed been sampled? ■ Yes ☐ No

If no, explain why:

7. Summary of Total Asbestos Containing Material (ACM) Findings

Regulated Asbestos Containing Material (RACM) (Includes materials subject to known mechanical removal and fire damaged materials)			Category II		Category I	
Square Ft.	Linear Ft.	Cubic Ft.	Square Ft.	Linear Ft.	Square Ft.	Linear Ft.
12	0	0	80	0	19,560	0

To receive future SMAQMD Rule updates and changes affecting your industry (check one box):

☐ Please send e-mail notices to	☐ I will sign up myself at www.airquality.org/listserve/ to receive emailed notices.	
■ I am already subscribed.	☐ I want the District to mail notices to the address on this application:	☐ Owner ☐ Consultant

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Asbestos Renovation/Demolition Notification Form

777 12th Street, 3rd Floor
Sacramento, CA 95814
Office (916) 874-4800
Fax (916) 874-4899
Asbestos@airquaility.org

1	Building Department Permit Application # (if known) : _____	☐ ☐ ☐ ☐	Renovation (Do not complete Section 5) Demolition (Complete all sections) Ordered Demo - Attach ordered demo letter Emergency Demo - SMAQMD Emergency #._____

2	Contractor		Owner	Sacramento City Unified School District	
	Address		Address	5735 47th Street	
	City, State / Zip		City, State / Zip	Sacramento California 95824	
	Email		Email	chris-ralston@scusd.edu	
	Telephone		Telephone	916-395-3970	
3	Structure Name	Clayton B Wire Elementary	Renovation Area	Floors, MPR, Bldg 14-17, Portable RR	# of Floors 1
	Project Address	5100 El Paraiso Avenue	City / Zip	Sacramento 95824	Year Built 1960's
4	Preference for return of form	☐ E-mail	☐ Other :		

DEMOLITIONS ONLY - Start date must be at least 10 working days from the day of your postmark or hand delivery of this form.

5		Revision # 1 2 3 4 5 6 7 8 9 (circle)
	Start Date _____/_____/_____	New Start Date _____/_____/_____
	Completion Date _____/_____/_____	New Completion Date _____/_____/_____
	Method of Demo: (Check Applicable): ☐ Manual/Hand Tools ☐ Mechanical/Heavy Equipment ☐ Other	
	Procedure to be followed if RACM is found or Category II material becomes friable:	

I have read and understand the directions. The information on this form is true and accurate.
I certify that the asbestos survey conducted represents the facility as built.

6	Application Name (Print)	☐ ☐ ☐	Owner Rep / Agent Contractor	Permit may be issued on:
	Phone Number			
	Application Signature	Date		

Have DOSH Consultant complete and sign below OR attach completed Asbestos Survey Form and Consultant's report.

CONSULTANT USE ONLY

Company Name Entek Consulting Group, Inc.		Telephone (916) 632-6800	
Surveyor Name Blake Howes		DOSH # 13-5015	Survey Date Nov 29-30, 2022
Analytical Method PLM by Dispersion Staining		Pt Count Materials <10%	☐ Yes ■ No ☐ Declined by Client
Amount of RACM	Square Feet 0	Linear Feet 0	Cubic Feet 0
Amount of Category I 19,560 Sq.		Amount of Category II 0	
Project Address 5100 El Paraiso Avenue		City Sacramento	Zip 95824
Suspect Materials Present? ■ Yes ☐ No		Consultant's Signature Blake Howes	

SMAQMD USE ONLY

Date Received / Date Postmark _____ Date Approved & Returned _____

Project #_____ Check #_____ Receipt #_____ Amount Paid _____ Staff _____

ENTEK

APPENDIX B

LEAD RELATED DOCUMENTS

- Lead in Paint Samples Analysis Reports From MicroTest Laboratories
- Bulk Lead Material Analysis Request Forms for Entek
- Lead Bulk Sample Location Drawing
- Lead Hazard Evaluation Report (CDPH 8552)

MicroTest Laboratories, Inc. | AIHA ELPAT #160934
3110 Gold Canal Dr, Ste. A, Rancho Cordova, CA 95670
PH 916.567.9808 | FX 916.404.0302
www.microtestlabsinc.com | service@microtestlabsinc.com

****for office use only****

Project ID

L30996-31000

CLIENT INFORMATION

Company	Entek Consulting Group, Inc
Name	Ryan Metzen
Address	4200 Rocklin Road, Suite 7 Rocklin, CA 95677
Phone	916.632.6800
Email	mainoffice@entekgroup.com rmetzen@entekgroup.com

SAMPLE

Date	Tuesday, November 29, 2022
Time	

MicroTest Laboratories

Analytical Data

JOB SITE INFORMATION

Sampler	Blake Howes
Project	Sacramento City Unified School District
Site	Clayton B Wire Elementary School
Address	5100 El Paraiso Avenue Sacramento, CA 95824
Job #	22-6437

EPA METHOD 7420

Client Sample ID	Laboratory Sample ID	Client Sample Location / Description	Matrix	Results	Units	Reporting Limits	Results Comments	Units
ECG-22-6437-01Pb	L30996	Tan Colored Paint - Bldg 1-4, Room 3 on Wood Wall Panel	Paint	0.46%	Wt %	0.01%	4640	PPM
ECG-22-6437-02Pb	L30997	Blue/Green Colored Paint - Bldg 9-12, Room 12 on Wood Wall Panel	Paint	0.30%	Wt %	0.01%	2996	PPM
ECG-22-6437-03Pb	L30998	White Colored Paint - Bldg 9-12, Room 12 on Wood Wall Panel	Paint	0.09%	Wt %	0.01%	885	PPM
ECG-22-6437-04Pb	L30999	White over Blue Colored Paint - Bldg 14-17, Room 16 on Wood Wall Panel	Paint	<0.01%	Wt %	0.01%	<100	PPM
ECG-22-6437-05Pb	L31000	White Colored Paint - Bldg 14-17, Room 16 on Metal I-Beam	Paint	1.79%	Wt %	0.01%	17851	PPM

Date Received:	**Wednesday, November 30, 2022**
Date Analyzed:	**Thursday, December 1, 2022**
Date Reported:	**Friday, December 2, 2022**

Samples Received: 5

Samples Analyzed: 5

Analyst: **Erich Bowman**

Authorized Signatory: Kelly Favero - Lab Manager

This report applies to the standards and procedures indicated and to the specific samples analyzed. Samples have NOT been corrected for blank values. EPA Method 7000B & EPA Method 7420=EPA 600R/R93/200 Preparation Modified & EPA 7000B & EPA 7420 Analysis Modified.

L30996-31000

ENTEK

BULK LEAD MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: November 29, 2022

Lab: MicroTest Laboratories

Job Number: 22-6437

Collected by: Blake Howes

Client Name: Sacramento City Unified School District

Turnaround Time: 48 Hour

Site Address: Clayton B Wire Elementary School
5100 El Paraiso Avenue
Sacramento, CA 95824

ANALYSIS REQUESTED: Lead by Atomic Absorption Spectrometry

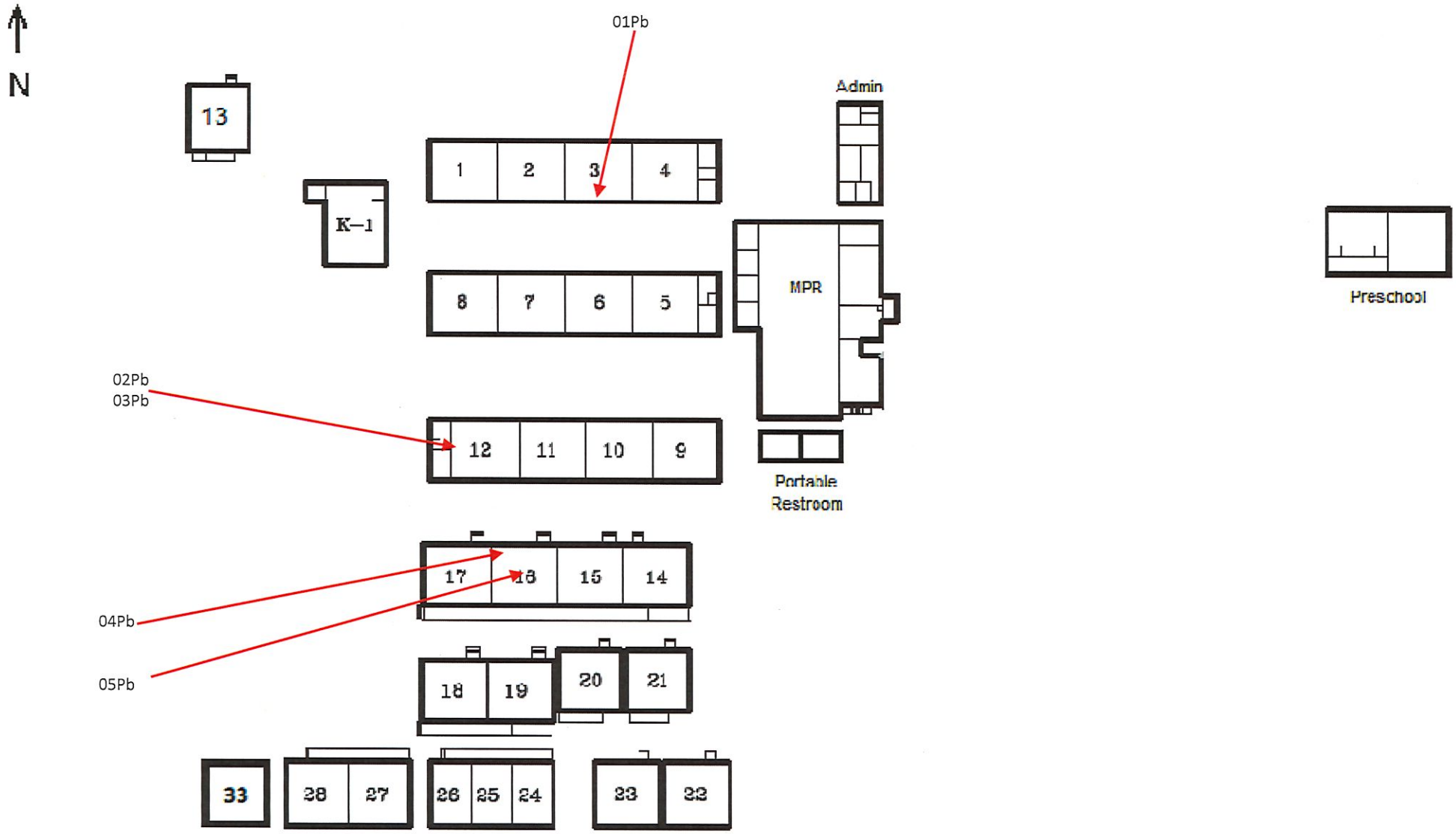
Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-22-6437-01Pb	Tan Colored Paint - Bldg 1-4, Room 3 on Wood Wall Panel
ECG-22-6437-02Pb	Blue/Green Colored Paint - Bldg 9-12, Room 12 on Wood Wall Panel
ECG-22-6437-03Pb	White Colored Paint - Bldg 9-12, Room 12 on Wood Wall Panel
ECG-22-6437-04Pb	White over Blue Colored Paint - Bldg 14-17, Room 16 on Wood Wall Panel
ECG-22-6437-05Pb	White Colored Paint - Bldg 14-17, Room 16 on Metal I-Beam

C:\Users\bhowes\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Bulk Pb\Bulk Request Pb 11-29-22.wpd

Delivered by: _____ **Date:** 11/30/22 **Time:** 1:03 AM/PM

Received by: _____ **Date:** 11/30/22 **Time:** 1:04 AM/PM



Sacramento City Unified School District Clayton B Wire Elementary School 5100 El Paraiso Avenue Sacramento, CA 95824	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Documents\Clients\Sacramento City USD\22-6437 CB Wire ES - HazMat\Drawings	Paint Bulk Sample Locations Collected by Blake Howes On November 29-30, 2022 Project Number 22-6437

ENTEK

APPENDIX C

BACK UP DOCUMENTATION

- Inspector Accreditations and Certifications
- Laboratory Accreditations for Asbestos and Lead Analysis

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Blake W Howes
Name

Certification No. **13-5015**

Expires on **04/17/23**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00003315	9/27/2022

Blake Howes

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101442-0

ASBESTECH

Rancho Cordova, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2022-07-01 through 2023-06-30

Effective Dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ASBESTECH
11151 Sun Center Drive, Suite B
Rancho Cordova, CA 95670
Mr. Tommy Conlon
Phone: 916-481-8902 Fax: 916-481-3975
Email: asbestech@sbcglobal.net
http://www.asbestechlab.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101442-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Fields of Accreditation

MicroTest Laboratories, Inc.

3110 Gold Canal Drive
Rancho Cordova, CA 95670
Phone: 9165679808

Certificate Number: 2974
Expiration Date: 6/30/2024

Field of Accreditation:114 - Inorganic Constituents in Hazardous Waste			
114.345	002	Antimony	EPA 6020 B
114.345	003	Arsenic	EPA 6020 B
114.345	004	Barium	EPA 6020 B
114.345	005	Beryllium	EPA 6020 B
114.345	006	Cadmium	EPA 6020 B
114.345	008	Chromium	EPA 6020 B
114.345	009	Cobalt	EPA 6020 B
114.345	010	Copper	EPA 6020 B
114.345	012	Lead	EPA 6020 B
114.345	016	Nickel	EPA 6020 B
114.345	018	Selenium	EPA 6020 B
114.345	021	Thallium	EPA 6020 B
114.345	023	Zinc	EPA 6020 B
114.345	024	Molybdenum	EPA 6020 B
114.515	001	Lead	EPA 7420
114.545	001	Mercury	EPA 7471 B
Field of Accreditation:115 - Leaching/Extraction Tests and Physical Characteristics of Hazardous Waste			
115.055	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
115.085	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311
Field of Accreditation:121 - Bulk Asbestos Analysis of Hazardous Waste			
121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 7/1/2022 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL LABORATORY ACCREDITATION

Is hereby granted to

MicroTest Laboratories, Inc.

3110 Gold Canal Drive

Rancho Cordova, CA 95670

Scope of the certificate is limited to the
"Fields of Accreditation"
which accompany this Certificate.

Continued accredited status depends on compliance with applicable laws and regulations, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2974**

Effective Date: **7/1/2022**

Expiration Date: **6/30/2024**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Program Manager
Environmental Laboratory Accreditation Program

SECTION 07 54 19

POLYVINYL-CHLORIDE (PVC/TPA) ROOFING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Mechanically fastened thermoplastic PVC/TPA roofing system on wood or metal deck, including:
2. Roof insulation cover board.
3. Walkway material.

B. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Division 06 Section " [Rough Carpentry] [Miscellaneous Rough Carpentry]" for wood nailers, curbs, and blocking.
3. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
4. Division 07 Section "Roof Accessories" for manufactured roof curbs and supports, hatches, and manufactured penetration flashings.
5. Division 07 Section "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.02 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.03 SUBMITTALS

A. Action Submittals

1. Product Data: For each type of product indicated.

B. Informational Submittals

1. Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.
2. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.
   a. Include letter from Manufacturer written for this Project indicating approval of Installer.

3. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
    a. Product Compatibility: Indicate manufacturer has verified compatibility of roofing system components, including but not limited to: Roofing membrane, flashing sheets, adhesives, and sealants.

4. Warranties: Unexecuted sample copies of special warranties.

C. Closeout Submittals

1. Maintenance Data: To include in maintenance manuals.
2. Warranties: Manufacturer and contractor warranties.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.

B. Manufacturer Qualifications: Approved manufacturer listed in this Section, UL listed for roofing systems identical to that specified for this Project, with minimum five years’ experience in manufacture of specified products in successful use in similar applications.

C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:

1. An authorized full-time technical employee of the manufacturer.

D. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.

6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.06 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

B. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.
2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
3. Remove temporary plugs from roof drains at end of each day.
4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.07 WARRANTY

A. Warranty, General: Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on

product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Manufacturer's Warranty: Manufacturer's standard or customized form, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Manufacturer's warranty includes roofing membrane, base flashings, fasteners, roofing membrane accessories and other components of roofing system specified in this Section.
2. A single manufacturer will provide warranty for both single ply and built-up roof systems specified.
3. Warranty Period: 20 years from date of Substantial Completion.

C. Installer's Warranty: Submit roofing Installer's warranty, on warranty form, signed by Installer, covering the Work of this Section and related Sections indicated above, including all components of membrane roofing such as single ply roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:

1. Warranty Period: Two years from date of Substantial Completion.

D. Extended Roof System Warranty: Warranties specified in this Section include the following components and systems specified in other sections supplied by the roofing system Manufacturer, and installed by the roofing system Installer:

1. Sheet metal flashing and trim, including roof penetration flashings.
2. Manufactured copings, roof edge, counterflashings, and reglets.
3. Roof curbs, hatches, and penetration flashings.
4. Roof and parapet expansion joint assemblies.
5. Metal roof, wall, and soffit panels and trim.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco, Inc. or Equal.

B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.02 PERFORMANCE REQUIREMENTS

A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to

defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.

1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.

C. Flashings and Fastening: Comply with requirements of Division 07 Sections “Sheet Metal Flashing and Trim” and “Roof Specialties.” Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with requirements and recommendations of the following:

1. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
2. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.

D. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

E. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

F. Energy Performance: Roofing system shall have an initial solar reflectance index of not less than 0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1.

2.03 THERMOPLASTIC MEMBRANE MATERIALS

A. Thermoplastic PVC/TPA sheet, ASTM D4434 Type IV internally fabric reinforced, Energy Star qualified, CRRC listed, and California Title 24 Energy Code compliant. The PVC/TPA sheet is comprised of an elastomeric tri-polymer alloy that is a blend of CPE, Elvaloy, and PVC.

1. Basis of design product: Tremco, TPA Roof Membrane or Equal.
2. Tensile Strength at 0 deg. F (-18 deg. C), minimum, ASTM D 751: 300 lbf/in.
3. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D 751: 100 lbf.
4. Elongation at 0 deg. F (-18 deg. C), minimum at fabric break, ASTM D 751: 25 percent.
5. Minimum Thickness, nominal, ASTM D 751: 60 mils.
6. Exposed Face Color: White.
7. Reflectance, ASTM C 1549: 86 percent.
8. Thermal Emittance, ASTM C 1371: 0.86.
9. Solar Reflectance Index (SRI), ASTM E 1980: 108.
10. Recycled Content, minimum: 25 percent pre-consumer.

B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC/TPA sheet membrane.

2.04 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

B. Membrane Bonding Adhesive:

1. Elastomeric solvent-based contact-type adhesive for bonding TPA single ply membranes and flashings to substrates.
   a. TPA Single Ply Bonding Adhesive or Equal.
   b. Density at 77 deg. F (25 deg. C), minimum, ASTM D 1475: 7.0 lb/gal.
   c. Percent solids, minimum: 25 percent.

C. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 mm by 3 mm) thick; with anchors.

D. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to membrane roofing system manufacturer.

E. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.05 ROOF INSULATION MATERIALS

A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated and that produce FM Global-approved roof insulation.

B. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

C. Roof Insulation:

1. Board Insulation, Polyisocyanurate: CFC- and HCFC- free, with recycled content glass-fiber mat facer on both major surfaces, ASTM C1289 Type II Class 1.
   a. Compressive Strength, ASTM D1621: [Grade 2: 20 psi (138 kPa)] [Grade 3: 25 psi (172 kPa)].
   b. Conditioned Thermal Resistance at 75 deg. F (24 deg. C): 14.4 at 2.5 inches (50.8 mm) thick.

D. Glass-mat-faced, pre-primed, gypsum panel coverboard, ASTM C 1177/C 1177M.

1. Basis of design product: DensDeck or equal.
2. Thickness: 1/4 inch.

2.06 WALKWAY MATERIALS

A. Walkway roll, reinforced PVC/TPA membrane roll with serrated slip-resistant surface, fabricated for heat welding to compatible PVC/TPA membrane surface.

1. TPA Walkway Roll or Equal.
2. Roll Size: 36 inches by 60 feet.
3. Thickness: 0.080 inch.
4. Color: Grey.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
2. Wood Roof Deck: Verify that wood deck is securely fastened with no projecting fasteners.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.03 INSTALLATION, GENERAL

A. Install roofing system in accordance with manufacturer’s recommendations.

3.04 INSULATION INSTALLATION

A. Cover Boards: Install cover boards straight lines with end joints staggered between rows. Loosely butt cover boards together and mechanically fasten to roof deck.

1. Mechanically fasten cover boards to resist uplift pressure at corners, perimeter, and field of roof.
2. Mechanically fasten cover boards, minimum 8 fasteners per 4' x 8' board.

3.05 MECHANICALLY FASTENED MEMBRANE ROOFING INSTALLATION

A. Mechanically fasten membrane roofing over area to receive roofing and install according to roofing system manufacturer's written instructions.

1. Install sheet according to ASTM D 5082.

B. Start installation of membrane roofing in presence of roofing system manufacturer's technical personnel.

C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Mechanically fasten or adhere membrane roofing securely at terminations, penetrations, and perimeter of roofing.

E. Apply membrane roofing with side laps shingled with slope of roof deck where possible.

F. Welded Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.
4. Install T patches where sheets intersect.

G. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

3.06 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.07 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

B. Walkways will not be installed over seams in single ply membrane.

3.08 FIELD QUALITY CONTROL

A. Manufacturer Inspector: Manufacturer will employ technical personnel to inspect the roof while it is being installed. Roof will be inspected a minimum of 3 times per week while in progress with jobsite reports, including photos, sent to all of the project stakeholders.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

D. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.09 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

B. This Section includes the following, but is not necessarily limited to:

1. Door Hardware, including electric hardware.
2. Storefront and Entrance door hardware.
3. Gate Hardware.
4. Digital keypad access control devices.
5. Thresholds, gasketing and weather-stripping.
6. Door silencers or mutes.

C. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 08 11 00 – Metal Doors and Frames.
3. Section 08 14 00 – Wood Doors and Frames.
4. Section 08 16 13 – FRP Doors.
5. Section 08 43 00 – Storefronts.
6. Section 32 31 13 – Chain Link Fences.
7. Section 32 31 19 – Decorative Metal Fences and Gates.

D. Related Documents

1. Drawings and general provisions of Contract, including General and Supplementary Conditions of Division 1 Specification Sections, apply to this Section.

1.02 REFERENCES

A. 2016 California Building Code, CCR, Title 24.

B. BHMA – Builders' Hardware Manufacturers Association

C. CCR – California Code of Regulations, Title 24, Part 2, California State Accessibility Standards.

D. DHI – Door and Hardware Institute

E. NFPA - National Fire Protection Association.

1. NFPA 80 – Standard for Fire Doors and Other Opening Protectives
2. NFPA 105 – Standard for Smoke Door Assemblies and Other Opening Protectives

F. UL - Underwriters Laboratories.

1. UL 10C – Standard for Positive Pressure Fire Tests of Door Assemblies
2. UL 305 – Standard for Panic Hardware

G. WHI - Warnock Hersey Incorporated

H. SDI - Steel Door Institute

1.03 SUBMITTALS & SUBSTITUTIONS

A. General: Submit in accordance with Conditions of the Contract and Division 1 Specification sections.

B. Submit product data (catalog cuts) including manufacturers' technical product information for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

C. Submit six (6) copies of schedule organized vertically into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:

1. Include a Cover Sheet with;
   a. Job Name, location, telephone number.
   b. Architects name, location and telephone number.
   c. Contractor’s name, location, telephone number and job number.
   d. Suppliers name, location, telephone number and job number.
   e. Hardware consultant's name, location and telephone number.

2. Job Index information included;
   a. Numerical door number index including; door number, hardware heading number and page number.
   b. Complete keying information (referred to DHI hand-book "Keying Systems and Nomenclature"). Provision should be made in the schedule to provide keying information when available; if it is not available at the time the preliminary schedule is submitted.
   c. Manufacturers' names and abbreviations for all materials.
   d. Explanation of abbreviations, symbols, and codes used in the schedule.
   e. Mounting locations for hardware.
   f. Clarification statements or questions.
   g. Catalog cuts and manufacturer’s technical data and instructions.

3. Vertical schedule format sample:

    a. Single or pair with opening number and location.
    b. Degree of opening
    c. Hand of door(s)
    d. Door and frame dimensions and door thickness.
    e. Label requirements if any.
    f. Door by frame material.
    g. (Optional) Hardware item line #.
    h. Keyset Symbol.
    i. Quantity.
    j. Product description.
    k. Product Number.
    l. Fastenings and other pertinent information.
    m. Hardware finish codes per ANSI A156.18.
    n. Manufacture abbreviation.

D. Make substitution requests in accordance with Division 1. Substitution requests must be made prior to bid date. Include product data and indicate benefit to the project. Furnish samples of any proposed substitution.

E. Wiring Diagrams: Provide product data and wiring and riser diagrams for all electrical products listed in the Hardware Schedule portion of this section.

F. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

G. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

H. Furnish as-built/as-installed schedule with close-out documents, including keying schedule and transcript, wiring/riser diagrams, manufacturers' installation and adjustment and maintenance information.

I. Fire Door Assembly Testing: Submit a written record of each fire door assembly to the Owner to be made available to the Authority Having Jurisdiction (AHJ) for future building inspections.

J. LEED Certification Points: Submit information and certifications necessary to achieve maximum points for LEED certification; coordinate and cooperate with Owner and Architect in providing information necessary for required LEED rating.

1.04 QUALITY ASSURANCE

A. Obtain each type of hardware (latch and lock sets, hinges, closers, exit devices, etc.) from a single manufacturer.

B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.

1. Responsible for detailing, scheduling and ordering of finish hardware.
2. Meet with Owner to finalize keying requirements and to obtain final instructions in writing. To maintain the integrity of patented key systems, provide a letter of authorization from the specified manufacturer indicating that supplier has authorization to purchase the key system directly from the manufacturer.
3. Stock parts for products supplied and are capable of repairing and replacing hardware items found defective within warranty periods.

C. Hardware Installer: Company specializing in the installation of commercial door hardware with five years documented experience.

D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not.

1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

E. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

F. Product packaging to be labelled in compliance with CA Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986.

G. Pre-Installation Conference

1. Schedule a pre-installation conference at least one week prior to beginning work of this section.
2. Attendance: Architect, Construction Manager, Contractor, Security Contractor, Hardware Supplier, Installer, Key Owner Personnel, and Project Inspector.
3. Agenda: Review hardware schedule, products, installation procedures and coordination required with related work. Review Owner’s keying standards.

1.05 DELIVERY, STORAGE AND HANDLING

A. Coordinate delivery of packaged hardware items to the appropriate locations (shop or field) for installation.

B. Hardware items shall be individually packaged in manufacturers' original containers, complete with proper fasteners. Clearly mark packages on outside to indicate contents and locations in hardware schedule and in work.

C. Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc.

D. Contractor to inventory door hardware jointly with representatives of hardware supplier and hardware installer until each all are satisfied that count is correct.

1.06 WARRANTY

A. Provide warranties of respective manufacturers' regular terms of sale from day of final acceptance as follows:

1. Locksets: "L" Series (3) years – "ND" Ten (10) years.
2. Electronic: One (1) year.
3. Closers: Thirty (30) years –1260 twenty (20) years –Concealed High Security fifteen (15) years except electronic closers shall be two (2) years.
4. Exit devices: Three (3) years.
5. All other hardware: Two (2) years.

1.07 MAINTENANCE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

Item	Manufacturer	Acceptable Substitutes
Hinges	Ives	Hager, Stanley, McKinney
Locks, Latches & Cylinders	Schlage	Or Approved Equal
Exit Devices	Von Duprin	Or Approved Equal
Closers	LCN	Or Approved Equal

Push, Pulls & Protection Plates	Ives	Trimco, BBW, DCI
Flush Bolts	Ives	Trimco, BBW, DCI
Dust Proof Strikes	Ives	Trimco, BBW, DCI
Coordinators	Ives	Trimco, BBW, DCI
Stops	Ives	Trimco, BBW, DCI
Overhead Stops	Glynn-Johnson	Or Approved Equal
Thresholds	Zero	Pemko, National Guard
Seals & Bottoms	Zero	Pemko, National Guard

2.02 MATERIALS

A. Hinges: Ives as scheduled.

1. Ives5BB1HW x NRP (Heavy use exterior doors) 630 finish.
   Ives 5BB1HW (Interior doors) 652 finish.

2. Hinges shall be sized in accordance with the following:
   a. Height:
      1) Doors up to 42" wide: 4-1/2" inches.
      2) Doors 43" to 48" wide: 5 inches.
   b. Width: Sufficient to clear frame and trim when door swings 180 degrees.
   c. Number of Hinges: Furnish 3 hinges per leaf to 7'-5" in height. Add one for each additional 2 feet in height.

3. Exterior out-swinging door butts shall be non-ferrous material and shall have stainless steel hinge pins. All doors to have non-rising pins.
4. Furnish non-removable pins (NRP) at all exterior out-swing doors and interior key lock doors with reverse bevels.

B. Continuous Hinges: Ives as scheduled.

1. SL-224HD (Heavy use exterior doors & Remodels) 628 finish.

C. Heavy Duty Cylindrical Locks and Latches: Schlage "ND" Series as scheduled with "Rhodes" design, fastened with through-bolts and threaded chassis hubs.

1. Bathroom (Student – multi use) ND94
2. Faculty ND94

3. Administration ND91
4. Communicating ND72VandlegardXN12-003
5. Classroom Safe School Lock ND95
6. Bathroom (Typical) ND94
7. Janitor / Storage room ND96
8. Bathroom (Faculty - single compartment toilet) L9485 x 06A x L283-722
9. Bathroom (Faculty and Student please consult)

10. Provide cylindrical locksets exceeding the ANSI/BHMA A156.2 Grade 1 performance standards for strength, security, and durability in the categories below:
    a. Abusive Locked Lever Torque Test – minimum 3,100 inch-pounds without gaining access
    b. Offset lever pull – minimum 1,600-foot pounds without gaining access
    c. Vertical lever impact – minimum 100 impacts without gaining access

11. Cycle life - tested to minimum 16 million cycles per ANSI/BHMA A156.2 Cycle Test with no visible lever sag or use of performance aids such as set screws or spacers
12. Cylinders: Refer to “KEYING” article, herein.
13. Provide solid steel anti-rotation through bolts and posts to control excessive rotation of lever.
14. Provide lockset that allows lock function to be changed to over twenty other common functions by swapping easily accessible parts.
15. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
16. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
17. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
18. Provide wired electrified options as scheduled in the hardware sets.
    a. 12 through 24-volt DC operating capability, auto-detecting
    b. Selectable EL (fail safe)/EU (fail secure) operating mode via switch on chassis
    c. 0.230A (230mA) maximum current draw
    d. 0.010A (10mA) holding current
    e. Modular / “plug in” request to exit switch

18. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides.

D. Exit devices: Von Duprin as scheduled.

1. CD98NL-AX x 990NL (Single Door) 626 finish
2. CD98NL-AX x CD98DT x KR4954 Mullion x 154 (Pairs) 626 finish
3. 98L-AX-2-F-996L (F Rated Single Door) 626 finish
4. 98L-AX-2-F-996L x 2 KR9954 Mullion 154(F Rated Pairs) 626 finish
    a. No vertical rods allowed.
    b. Use -2 Function to meet AB 211
    c. MT54 Mullion Storage at Pairs

5. Provide certificate by independent testing laboratory that device has completed over 1,000,000 cycles and can still meet ANSI/BHMA A156.3 - 2001 standards.
6. All internal parts shall be of cold-rolled steel with zinc dichromate coating.

5. Non-handed basic device design with center case interchangeable with all functions.
6. All devices shall have quiet return fluid dampeners.
7. All latch bolts shall be deadlocking with ¾" throw and have a self-lubricating coating to reduce friction and wear.
8. Device shall bear UL label for fire and or panic as may be required.
9. All surface strikes shall be roller type and utilize a plate underneath to prevent movement.
10. Lever Trim: "Breakaway" design, forged brass or bronze escutcheon with a minimum of .130" thickness, match lockset lever design.
11. Removable Mullions: Removable with single turn of building key. Securely reinstalled without need for key.
    a. MT54 Mullion Storage at Pairs

12. Furnish glass bead kits for vision lites where required.
13. All Exit Devices to be sex-bolted to the doors.
14. Panic Hardware shall comply with CBC Section 11B.404.2.7 and shall be mounted between 34" and 44" above the finished floor surface.
    a. The unlatching force shall not exceed 15 lbs. applied in the direction of travel.

-OR-

    b. Provide exit devices UL certified to meet maximum 5-pound requirements according to the California Building Code section 11B-309.4, and UL listed for Panic Exterior Fire Exit Hardware.

E. Closers: LCN as scheduled. Place closers inside building, stairs, room, etc.

1. P4041XP 689 finish
    a. Hold open arms or cush closers are not allowed.

2. Door closer cylinders shall be of high strength cast iron construction with double heat-treated pinion shaft to provide low wear operating capabilities of internal parts throughout the life of the installation. All door closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified testing laboratory. A written certification showing successful completion of a minimum of 10,000,000 cycles must be provided.
3. All door closers shall be fully hydraulic and have full rack and pinion action with a shaft diameter of a minimum of 11/16 inch and piston diameter of 1 inch to ensure longevity and durability under all closer applications.
4. All parallel arm closers shall incorporate one-piece solid forged steel arms with bronze bushings. 1-9/16" steel stud shoulder bolts, shall be incorporated in regular arms, hold-open arms, arms with hold open and stop built in. All other closers to have forged steel main arms for strength, durability, and aesthetics for versatility of trim accommodation, high strength and long life.
5. All parallel arm closers so detailed shall provide advanced backcheck for doors subject to severe abuse or extreme wind conditions. This advanced backcheck shall be located to begin cushioning the opening swing of the door at approximately 45 degrees. The intensity of the backcheck shall be fully adjustable by tamper resistant non-critical screw valve.
6. Closers shall be installed to permit doors to swing 180 degrees.
7. All closers shall utilize a stable fluid withstanding temperature range of 120 degrees F. to -30 degrees F. without requiring seasonal adjustment of closer speed to properly close the door.

8. Provide the manufactures drop plates, brackets and spacers as required at narrow head rails and special frame conditions. NO wood plates or spacers will be allowed. Door frames shall be reinforced at all mounting locations.
9. Maximum effort to operate closers shall not exceed 5 lbs., such pull or push effort being applied at right angles to hinged doors. Compensating devices or automatic door operators may be utilized to meet the above standards. When fire doors are required, the maximum effort to operate the closer may be increased but shall not exceed 15 lbs. when specifically approved by fire marshal. All closers shall be adjusted to operate with the minimum amount of opening force and still close and latch the door. These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position. Per 11B- 404.2.8.1, door shall take at least 5 seconds to move from an open position of 90 degrees to a position of 12 degrees from the latch jamb.

F. Flush Bolts & Dust Proof Strikes: Ives as scheduled.

1. FB51 (Manual) (metal doors) (Storage & Utility rooms) 626 finish
2. FB61P (Manual) (wood doors) (Storage & Utility rooms) 626 finish
   a. Manual flush bolts only permitted on storage or mechanical openings as scheduled.
   b. Provide dust proof strikes at openings using bottom bolts.
   c. Automatic flush bolts allowed only where required by Fire Code.

G. Door Stops: Ives as scheduled.

1. FS18S (Exterior Floor) 626 finish
2. FS 436/438 (Interior Floor) 626 finish
3. WS 406CVX (Wall) 626 finish
4. WS406CCV (Inswing push-button locks) 626 finish
   a. Allow for maximum swing of doors
   b. Backing required at wall holders

5. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where wall type cannot be used, provide floor type. If neither can be used, provide overhead type.
6. Do not install floor stops more than four (4) inches from the face of the wall or partition (CBC Section 11B-307).
7. Overhead stops shall be made of stainless steel and non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.

H. Door Holders: Ives as scheduled.

1. WS452-4 Series Automatic Holder (Door) 626 finish
2. FS40 Series Automatic Holder (Wall) 626 finish
   a. Backing required at wall holders
   b. Allow for maximum door swing

I. Protection Plates: Ives as scheduled.

1. Kick Plate: 8400-10” x 2” LDW 630 finish
2. Mop Plate: 8400-5” x 2” LDW 630 finish
3. Push / Pull Plate: 8200 x 8302-6x 4x16 630 finish
4. Lock Protector: LP-13, LP-12 626 finish
5. Fabricate either kick, armor, or mop plates with four beveled edges. Provide kick plates 10" high and 2" LDW. Sizes of armor and mop plates shall be listed in the Hardware Schedule. Furnish with machine or wood screws of bronze or stainless to match other hardware.

J. Thresholds: As Scheduled and per details.

1. Thresholds shall not exceed 1/2" in height, with a beveled surface of 1:2 maximum slope.
2. Set thresholds in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 7 “Thermal and Moisture Protection”.
3. Use ¼” fasteners, red-head flat-head sleeve anchors (SS/FHSL).
4. Thresholds shall comply with CBC Section 11B-404.2.5.

K. Seals and Surface Applied Hardware: Zero as scheduled.

1. Smoke Seal:488S-BK Black
2. Weather Seal: 488S-BK 628 finish

-and-

8780N Factory

3. Door Sweep: 328AA 689 finish
4. 139SS (Wood doors) (Use only where required by fire code) 630
   a. Astragal by door manufacturer at HM door
5. Drip Guard: 17D x 4” PDW (Exterior doors exposed to rain) 628
6. Door Bottom: Use automatic door bottoms only if required by code.
7. Provide silicone gasket at all rated and exterior doors.
8. Fire-rated Doors, Resilient Seals: UL10C Classified complies with NFPA 80 & NFPA 252. Coordinate with selected door manufacturers' and selected frame manufacturers' requirements.
9. Fire-rated Doors, Intumescent Seals: Furnished by selected door manufacturer. Furnish fire-labeled opening assembly complete and in full compliance with UL10C Classified complies with NFPA 80 & NFPA 252. Where required, intumescent seals vary in requirement by door type and door manufacture -- careful coordination required.
10. Smoke & Draft Control Doors, Provide UL10C Classified complies with NFPA 80 & NFPA 252 for use on “S” labeled Positive Pressure door assemblies.

L. Door Shoes & Door Top Caps: Provide door shoes at all exterior wood doors and top caps at all exterior out-swing doors.

M. Silencers: Ives as scheduled.

1. 654A, 655A, 623A Black
2. Furnish silencers for interior hollow metal frames, 3 for single doors, 2 for pairs of doors. Omit where sound or light seals occurs, or for fire-resistive-rated door assemblies.

N. Keying: Schlage as scheduled.

1. Furnish a Proprietary Schlage master key system as directed by the owner or architect. Key system to be designated and combination-d by the Schlage Master Key Department even if pinned by the Authorized Key Center, Authorized Security Center or a local authorized commercial dealer. This is to be a Schlage Primus keying system. SCUSD to verify all keyways. Provide as follows:
   a. 6 pin x Standard Core plug (D Series) 626 finish
   b. 6 pin x Rim type x IC Core (Exit Device) 626 finish
   c. 6 pin x 1-1/4" Mortise x IC Core (KR Mullions and CD) 626 finish

2. A detailed keying schedule is to be prepared by the owner and/or architect in consultation with a representative of Allegion or an Authorized Key Center or Authorized Security Center. Each keyed cylinder on every keyed lock is to be listed separately showing the door #, key group (in BHMA terminology), cylinder type, finish and location on the door.
3. Establish a new master key system for this project as directed by the keying schedule.
4. Furnish all cylinders in the Schlage conventional style except the exit device and removable mullion cylinders which will be supplied in Schlage Full Size Interchangeable Core (FSIC). Pack change keys independently (PKI).
5. Furnish PrimusXP "Classic" keyway Patent Protected Schlage cylinders where noted. Furnish all other cylinders in matching conventional "Classic" keyway. Furnish Patent Protected Schlage keys for all cylinders. (e.g., Primus XP Classic Keyway for patent protected / Maximum control) (with mix of conventional "Classic" keyway)
6. Furnish construction keying for doors requiring locking during construction.
   a. For FSIC systems provide 23-030-ICX Full Size Construction Cores
   b. For FSIC systems provide ten 48-101-ICX Construction Keys
   c. For FSIC systems provide two 48-056-ICX Control Keys (const.)
   d. For FSIC systems provide two control keys for installing the permanent cores (49- 056 for "Classic" keyways, 48-052-XP for "Classic Primus") (49-003 for "Everest Conventional", 48-005–XP for "Everest Primus")

-OR-

7. Furnish construction keying for doors requiring locking during construction.
   a. For "Split Key" Construction Cylinders (non-IC cylinders) specify "CK" for each keyed cylinder.
   b. Provide ten Construction Keys (48-104 "Classic", 48-008 "Everest")
   c. Provide two Extractor Tools (35-057)

8. Furnish all keys with visual key control.
   a. Stamp key "Do Not Duplicate".

9. Furnish mechanical keys as follows:
   a. Furnish 2 cut change keys for each different change key code.
   b. Furnish 1 uncut key blank for each change key code.
   c. Furnish 6 cut master keys for each different master key set.
   d. Furnish 3 uncut key blanks for each master key set.
   e. Furnish 2 cut control keys cut to the top master key for permanent I/C cylinders.

f. Furnish 1 cut control key cut to each SKD combination.
g. Furnish KS43D2200 padlock for use with non-I/C Schlage cylinders. Furnish 47- 413 (conventional) or 47-743-XP (PrimusXP) with above.
h. Furnish KS43G3200 padlock for use with FSIC Schlage cylinders. Furnish 23-030 (Classic / Everest) or 20-740 (PrimusXP) with above.
i. Furnish KS41D1200 padlock for use with SFIC Schlage cylinders. Furnish 80-037 (Everest-B) with above.

10. Furnish Schlage Padlocks and the cylinders to tie them into the master key system for gates, storage boxes, utility valve security, roof hatches and roll-up doors keyed as directed in the keying schedule.
    a. Furnish KS43D2200 padlock for use with non-I/C Schlage cylinders. Furnish 47- 413 (conventional) or 47-743-XP (PrimusXP) with above.
    b. Furnish KS43G3200 padlock for use with FSIC Schlage cylinders. Furnish 23-030 (Classic / Everest) or 20-740 (PrimusXP) with above.
    c. Furnish KS41D1200 padlock for use with SFIC Schlage cylinders. Furnish 80-037 (Everest-B) with above.

O. Fasteners

1. Screws for strikes, face plates and similar items shall be flat head, countersunk type, provide machine screws for metal and standard wood screws for wood.
2. Screws for butt hinges shall be flathead, countersunk, full-thread type.
3. Fastening of closer bases or closer shoes to doors shall be by means of sex bolts and spray painted to match closer finish.
4. Provide expansion anchors for attaching hardware items to concrete or masonry.
5. All exposed fasteners shall have a Phillips head.
6. Finish of exposed screws to match surface finish of hardware or other adjacent work.
7. All Exit Devices and Lock Protectors shall be fastened to the door by the means of sex bolts or through bolts.

2.04 FINISHES

A. Generally, to be satin chrome US26D (626 on bronze and 652 on steel) unless otherwise noted.

B. Furnish push plates, pull plates and kick or armor plates in satin stainless steel US32D (630) unless otherwise noted.

C. Door closers shall be powder-coated to match other hardware, unless otherwise noted.

D. Aluminum items to be finished anodized aluminum except thresholds which can be furnished as standard mill finish.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify that doors and frames are square and plumb and ready to receive work and dimensions are as instructed by the manufacturer.

B. Beginning of installation means acceptance of existing conditions.

C. Fire-Rated Door Assembly Inspection: Upon completion of the installation, all fire door assemblies shall be inspected to confirm proper operation of the closing device and latching device and that only the manufacturer's furnished fasteners are used for installation and that it meets all criteria of a fire door assembly per NFPA 80 (Standard for Fire Doors and Other Opening Protectives) A written record shall be maintained and transmitted to the Owner to be made available to the Authority Having Jurisdiction (AHJ). The inspection of the swinging fire doors shall be performed by a certified FDAI (Fire Door Assembly Inspector) with knowledge and understanding of the operating components of the type of door being subjected to the inspection. The record shall list each fire door assembly throughout the project and include each door number, an itemized list of hardware set components at each door opening, and each door location in the facility.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and requirements of DHI.

B. Use the templates provided by hardware item manufacturer.

C. Mounting heights for hardware shall be as recommended by the Door and Hardware Institute. Operating hardware will to be located between 34" and 44" AFF.

D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

F. Set thresholds for exterior doors in full bed of butyl-rubber sealant.

G. If hand of door is changed during construction, make necessary changes in hardware at no additional cost.

H. Hardware Installer shall coordinate with security contractor to route cable to connect electrified locks, panic hardware and fire exit hardware to power transfers or electric hinges at the time these items are installed so as to avoid disassembly and reinstallation of hardware.

I. Hardware Installer shall also be present with the security contractor when the power is turned on for the testing of the electronic hardware applications. Installer shall make adjustments to solenoids, latches, vertical rods and closers to insure proper and secure operation.

J. All wiring for electro-mechanical hardware mounted on the door shall be connected through the power transfer and terminated in the interface junction box specified for in the Electrical Section.

K. Conductors shall be minimum 18 gage stranded, multicolored. A minimum 12 in. loop of conductors shall be coiled in the interface junction box. Each conductor shall be permanently marked with its function.

L. If a power supply is specified in the hardware sets, all conductors shall be terminated in the power supply. Make all connections required for proper operation between the power supply and the electro-mechanical hardware. Provide the proper size conductors as specified in the manufacturer's technical documentation.

J. Hardware Locations

1. Conform to CCR, Title 24, Part 2; and ADAAG; and the drawings for access-compliant positioning requirements for the disabled.

3.03 ADJUSTING AND CLEANING

A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

B. Clean adjacent surface soiled by hardware installation.

C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy, return to that work area and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

D. Instruct Owner's Personnel in proper adjustment and maintenance of hardware finishes, during the final adjustment of hardware.

E. Continued Maintenance Service: Approximately six months after the completion of the project, the Contractor accompanied by the Architectural Hardware Consultant, shall return to the project and re-adjust every item of hardware to restore proper functions of doors and hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.05 FIELD QUALITY CONTROL

A. Contractor is responsible for providing the services of an Architectural Hardware Consultant (AHC) or a proprietary product technician to inspect installation and certify that hardware and its installation

have been furnished and installed in accordance with manufacturers' instructions and as specified herein.

3.06 SCHEDULE

A. The items listed in the following schedule shall conform to the requirements of the foregoing specifications.

B. While the hardware schedule is intended to cover all doors, and other movable parts of the building, and establish type and standard of quality, the contractor is responsible for examining the Plans and Specifications and furnishing proper hardware for all openings whether listed or not. If there are any omissions in hardware groups in regard to regular doors they shall be called to the attention of the Architect prior to bid opening for instruction; otherwise, list will be considered Complete. No extras will be allowed for omissions.

C. The Door Schedule on the Drawings indicates which hardware set is used with each door.

Manufacturers Abbreviations (Mfr.)

GLY	=	Glynn-Johnson Corporation	Overhead Door Stops
IVE	=	Ives	Hinges, Pivots, Bolts, Coordinators, Dust Proof Strikes, Push Pull & Kick Plates, Door Stops & Silencers
LCN	=	LCN	Door Closers
SCE	=	Schlage Electronics	Electronic Door Components
SCH	=	Schlage Lock Company	Locks, Latches & Cylinders
VON	=	Von Duprin	Exit Devices
ZER	=	Zero International	Thresholds, Gasketing & Weather-stripping

HARDWARE GROUP NO. 001 - EXTERIOR DR / ACCESS CONTROL
DOOR NUMBERS - 100A 100B 103B 111A 111B 231A

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC OFFICE LOCK	AD-300-CY-50-MT-RHO-L-BAA 12/24 VDC (PROVIDED BY DIVISION 28)	626	SCE
1	EA	PRIMUS K-I-L CYL.	20-765-XP	626	SCH
1	EA	LOCK GUARD	LG13	630	IVE
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS TKTX	630	IVE
1	EA	FLOOR STOP	FS18S	BLK	IVE
1	EA	DOOR SWEEP	328AA	AA	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	THRESHOLD	PER DETAIL	AL	ZER

HARDWARE GROUP NO. 002 - INTERIOR / OFFICE, CONFERENCE

DOOR NUMBERS - 102A 103A 104A 203A 205A 206A 208A 209A 210A 211A 212A 213A 214A 235A 216A 236A 223A 237A 224A 239A 232A 234A

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	VANDL OFFICE LOCK	ND91LD RHO	626	SCH
1	EA	PRIMUS K-I-L CYL.	20-765-XP	626	SCH
1	EA	FLOOR STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 003 - INTERIOR / CASEY'S CORNER
DOOR NUMBERS - 105A

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	VANDL OFFICE LOCK	ND91LD RHO	626	SCH
1	EA	PRIMUS K-I-L CYL.	20-765-XP	626	SCH
1	EA	OH STOP	100S	630	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS TKTX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 004 - INTERIOR / STAFF TOILET 106A 107A 228A 229A

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK	ND40S RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS TKTX	630	IVE
1	EA	WALL STOP	WS406/407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 005 - INTERIOR / STORAGE 108A

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	VANDL STOREROOM	ND96LD RHO	626	SCH
1	EA	PRIMUS K-I-L CYL.	20-765-XP	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS TKTX	630	IVE
1	EA	FLOOR STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 006 - EXTERIOR / BOY'S GIRL'S 109A 110A 303A 304A

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	VANDL CLASSROOM	ND94LD RHO	626	SCH

1	EA	PRIMUS K-I-L CYL.	20-765-XP	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS TKTX	630	IVE
1	EA	WALL STOP	WS406/407CCV	626	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	DOOR SWEEP	111AA	AA	ZER
1	EA	THRESHOLD	PER DETAIL	AL	ZER

HARDWARE GROUP NO. 007 - EXTERIOR PAIR / PANIC HDWE / ACCESS CONTROL 200A 302A 305A

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	224XY EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	REMOVABLE MULLION	KR4954 STAB	689	VON
2	EA	ELEC PANIC	LD-RX-LC-PA-AX-99-EO	626	VON
1	EA	ELEC EXIT DEVICE	AD-300-993R-70-MT-RHO-L-LRX 12/24	626	SCE
		TRIM VDC (PROVIDED BY DIVISION 28)			
1	EA	PRIMUS	K-I-L CYL. 20-765-XP	626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX	626	SCH
1	EA	PRIMUS CORE	20-740-XP	626	SCH
2	EA	SURFACE CLOSER	4040XP EDA	689	LCN
2	EA	FLOOR STOP	FS18S	BLK	IVE
2	EA	DOOR SWEEP	328AA	AA	ZER
2	EA	MEETING STILE	328AA-S	AA	ZER
1	EA	MULLION SEAL	8780NBK PSA	BK	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	THRESHOLD	PER DETAIL	AL	ZER

END OF SECTION

SECTION 09 51 00

ACOUSTICAL CEILINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Lay-in acoustical ceiling systems and metal suspension system.

B. Related Requirements:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 09 29 00 - Gypsum Board.
5. Division 23 - HVAC.
6. Division 26 - Electrical.

1.02 REFERENCES

A. Conform to CBC requirements and UL - Tunnel Test for Fire Hazard Classification of Building Materials.

B. CISCA: Acoustical Ceilings Use and Practice.

C. Division of the State Architect: Comply with requirements of IR 25-2.10.

D. ASTM A641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

E. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

F. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

G. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

H. ASTM C636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

I. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

J. ASTM E580 – Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.

K. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.

L. ASTM E1414 - Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.

M. ASTM E1477 - Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

N. ASCE 7 - Minimum Design Loads for Buildings and Other Structures, as amended by CBC 1615A.1.16.

O. CHPS Low-Emitting Materials Table: Materials submitted must be listed as low emitting on the CHPS website, www.CHPS.net.

1.03 SUBMITTALS

A. Samples:

1. Lay in panels of each specified type, 6-inch by 6-inch minimum size.
2. Suspension System: 12-inch-long samples of suspension system members, connections, moldings and wall angles, for each color specified.

B. Shop Drawings:

1. Indicate complete plan layouts and installation details.
2. Indicate related Work of other sections which is installed in, attached to, or penetrates ceiling areas, such as air distribution and electrical devices.

C. Product Data:

1. Suspension System for Lay-in Ceiling: Printed data for suspension system components, including load tests, indicating conformance to specified tests and standards.
2. Acoustical units: Printed data indicating conformance to specified tests and standards.

D. Maintenance Materials: Provide extra panels equal to 1 percent of the area of each typical module size of acoustical panel, but not less than eight (8) of each specified size, style and color.

1.04 QUALITY ASSURANCE

A. Ceiling systems shall consist of lay-in acoustical ceiling panels by a single manufacturer and suspension systems by a single manufacturer for the entire project.

B. Qualifications of Installer: Minimum five (5) years' experience in installing acoustical ceiling systems of the types specified.

C. Design Criteria:

1. Deflection of finished surface to 1/360 of span or less.
2. 1/8-inch maximum permissible variation from true plane measured from 10-foot straightedge placed on surface of finished acoustical fiber units.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the Project site in original sealed packages.

B. Storage: Store materials in building area where they will be installed, in original package. Keep clean and free from damage due to water or deteriorating elements.

C. Handle in a manner to prevent damage during storage and installation.

1.06 PROJECT CONDITIONS

A. Installation of acoustical ceiling system shall not begin until the building is enclosed, permanent heating and cooling is in operation, and residual moisture from plaster and concrete work has dissipated. Building areas to receive ceilings shall be free of construction dust and debris.

B. Environmental Requirements: Maintain temperature in space at 55 degrees F or above for 24 hours before, during, and after installation of materials.

C. Scheduling:

1. Before concealing Work of other sections, verify required tests and inspections have been completed.
2. Coordinate with related Work of other sections. Coordinate location and symmetrical placement of air distribution devices, electrical devices, and penetrations with related Work section.

1.07 WARRANTY

A. Manufacturer shall provide a 10-year material warranty.

B. Installer shall provide a two (2) year fabrication and installation warranty.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. USG Corporation.

B. Armstrong World Industries.

C. CertainTeed Ceilings Corp.

D. Or Approved Equal.

2.02 SUSPENSION SYSTEM

A. Metal suspension system for acoustical lay-in tile shall be hot-dipped galvanized steel conforming to ASTM A653. Main beams and cross tees shall be double-web steel construction with exposed flange design, with factory punched cross tee slots, hanger holes and integral couplings.

B. Metal suspension system for acoustical lay-in tile shall conform with ASTM C635, C636 and E580 and section 13.5.6 of ASCE 7, as amended by CBC Section 1615A.1.16, for installation in high seismic areas.

C. Structural classification of suspension systems shall be heavy-duty in conformance to ASTM C635.

D. Vertical Strut: USG Donn Compression Post, or equal, or as indicated; types and designs complying with requirements of authorities having jurisdiction and seismic Zones D, E and F requirements. Provide base attachment clip for connection of vertical strut to main beams.

E. Wall Molding: Fabricated from galvanized steel with 2-inch horizontal leg and hemmed edges, same finish as main and cross tees.

F. Spacer/Stabilizer Bars: Provide for tying together the ends of main runners and cross tees that are not attached to wall molding.

G. Hanger Wire: 0.106-inch diameter (0.144-inch diameter for pendant fixtures), galvanized soft annealed mild steel wire as defined in ASTM A641, Class 1 coating.

H. Provide attachment devices and any other required accessories for a complete suspended ceiling system installation.

2.03 ACOUSTICAL CEILING PANELS

A. Acoustical ceiling panels shall be class A in accordance to ASTM E1264.

B. Acoustical panels shall meet the following surface-burning characteristics when tested in accordance to ASTM E84 for Class A materials:

1. Maximum Flame Spread: 25.
2. Maximum Smoke Developed: 50.

C. Mold and Mildew Resistance: Panels and faces shall be treated with a biocide paint additive or an antimicrobial solution to inhibit mold and mildew.

2.04 CEILING TYPES

A. ACT 1 - Classrooms:

1. Acoustical Ceiling Panels:

a. Panel Name: Armstrong Fine Fissured High NRC 1811, USG Radar Climaplus HiNRC 22311, CertainTeed Fine Fissured HHF 497 HNRC, or equal.
b. Panel Size: 2-foot by 4-foot.
c. Panel Thickness: 3/4 inch.
d. Edge Detail: Lay-in.
e. Light Reflectance: 0.82 minimum, complying with ASTM E1477.
f. CAC: Minimum 40, UL Classified, complying with ASTM E1414.
g. NRC: Minimum 0.70, UL Classified, complying with ASTM C423.
h. Color: White.
i. Recycled Content: Minimum 37 percent.

2. Suspension System:
a. Suspension System Name: Prelude XL by Armstrong, Donn DX by USG, 1200 Seismic Series by Chicago Metallic Corporation, or equal.
b. Color: White.

B. ACT 2 - Administration:

1. Acoustical Ceiling Panels:
a. Panel Name: Armstrong Ultima 1912, USG Mars ClimaPlus 86985, CertainTeed Symphony M No. 1222BF-OVT-1, or equal.
b. Panel Size: 2-foot by 2-foot.
c. Panel Thickness: 3/4 inch.
d. Edge Detail: Beveled tegular.
e. Light Reflectance: 0.89 minimum, in accordance with ASTM E1477.
f. CAC: Minimum 35, UL Classified, complying with ASTM E1414.
g. NRC: Minimum 0.75, UL Classified, complying with ASTM C423.
h. Color: White.
i. Recycled Content: 74 percent minimum.

2. Suspension System:
a. Suspension System Name: Silhouette XL by Armstrong, Fineline by USG, 4500 Ultraline Series by Chicago Metallic Corporation, or equal.
b. Color: White.

C. ACT 3 - Cafeteria:

1. Acoustical Ceiling Panel:

a. Panel Name: Armstrong Optima Open Plan 3250PB, USG Halcyon Eco No. 97315, or equal. Formaldehyde free.
b. Panel Size: 2-foot by 2-foot.
c. Panel Thickness: 1 inch.
d. Edge Detail: Tegular.
e. Light Reflectance: 0.88 minimum, complying with ASTM E1477.
f. NRC: Minimum 0.95, UL Classified, complying with ASTM C423.
g. Color: White.
h. Recycled Content: Minimum 28 percent.

2. Suspension System:

a. Suspension System Name: Prelude XL by Armstrong, Donn DX by USG, 1200 Seismic Series by Chicago Metallic Corporation, or equal.
b. Color: White.

D. ACT 4 – Other areas:

1. Acoustical Ceiling Panel:
a. Panel Name: Armstrong Fine Fissured 1729, USG Radar Climaplus 2410, CertainTeed Hytone Fine Fissured HHF 197, or equal.
b. Panel Size: 2-foot by 4-foot.
c. Panel Thickness: 5/8 inch.
d. Edge Detail: Lay-in.
e. Light Reflectance: 0.82 minimum, complying with ASTM E1477.
f. CAC: Minimum 35, UL Classified, complying with ASTM E1414.
g. NRC: Minimum 0.55, UL Classified; complying with ASTM C423.
h. Color: White.
i. Recycled Content: Minimum 37 percent.

2. Suspension System:
a. Suspension System Name: Prelude XL by Armstrong, Donn DX by USG, 1200 Seismic Series by Chicago Metallic Corporation, or equal.
b. Color: White.

PART 3 - EXECUTION

3.01 PREPARATION

A. Furnish layouts for inserts, clips or other supports and struts required to be installed by the Work of other trades that depend on the suspended ceiling system for support.

B. Coordinate related Work to ensure completion prior to installation of clips or fasteners.

C. Compare layouts with construction conditions. Tile shall be spaced symmetrically about the centerlines of the room or space, and shall start with a tile or joint line as required to avoid narrow tiles at the finish edges unless indicated otherwise. Joints shall be tight with joint lines straight and aligned with the walls. Ceiling moldings shall be provided where tile abuts wall with matching caulking to eliminate any space.

3.02 INSTALLATION

A. Suspension Systems

1. Install suspension system in accordance with ASTM C636 and ASTM E580.
2. System shall be complete; with joints neatly and tightly joined and securely fastened; suspension members shall be installed in a true, flat, level plane.
3. Hanger Wires: 0.106-inch diameter minimum; larger sizes as indicated or required.
   a. Fasten wires to panel points and structure above per most stringent requirements of fabricator and CBC and as indicated on Drawings.
   b. Wires exceeding 1:6 out-of-plumb shall be braced with counter-sloping wires.
   c. Maintain wires at least 6 inches from non-braced ducts, pipes, conduits, and other items.
   d. Install wire along main runners at 4 feet on center. Terminal ends of each main runner and cross tee must be supported within 8 inches of each wall with a perimeter wire or within 1/4 of the length of the end tee, whichever is least, for the perimeter of the ceiling area.
   e. Where obstructions prevent direct suspension, provide trapezes or equivalent devices; 1 ½-inch minimum cold rolled channels back-to-back may be installed for spans to 6 feet maximum.
   f. Wire shall be straight, without extraneous kinks or bend. Hanger wire connections must be capable of carrying a 200 - pound pull without stretching or shifting the suspension clip.
4. Bracing Wires to Resist Seismic Forces: 0.106-inch diameter minimum, larger sizes as indicated or required.
   a. System for Bracing Ceilings: Lay-in Ceiling Systems: Install one (1) 4 wire set of sway bracing wires and a vertical strut for each 144 square feet maximum of ceiling area. Locate wire sets and struts at 12 feet maximum on center. At ceiling perimeters, wire-sets shall be installed within 6 feet of walls.
   b. Install 4-wire sets and struts within 2 inches of cross-runner intersection with main runner; space wires 90 degrees from each other.
   c. Do not install sway bracing wires at an angle greater than 45 degrees with the ceiling plane.
   d. Wires shall be tight, without causing ceiling to lift.
   e. Fasten struts in accordance with CBC requirements.
   f. Maintain wires at least 6 inches from non-braced ducts, pipes, conduit, and other items.
5. Provide additional wires, 0.106-inch diameter minimum, necessary to properly support suspension at electrical devices, air distribution devices, vertical soffits, and other concentrated loads.
6. Suspension:
   a. Suspension members shall be fastened to two (2) adjacent walls per ASTM 580; but shall be at least 3/4 inches minimum clear of other walls.

b. Any suspension members not fastened to walls shall be interconnected to prevent spreading, near their free end, with a horizontal metal strut or stabilizer bar or 0.064-inch diameter taut tie wire.
c. Provide additional tees or sub tees to frame openings for lights, air distribution devices, electrical devices, and other items penetrating through ceiling, which do not have an integral flange to support and conceal cut edges of acoustic panels. Provide cross bracing necessary to securely support any surface mounted fixtures or other items.

7. Attachment of Wires:
   a. To Metal Deck or Steel Framing Members: Install as required by current code.
   b. To Suspension Members: Insert through holes in members or supporting clips.
   c. Wires shall be fastened with three (3) tight turns minimum for hanger wires and four (4) tight turns minimum bracing wires. Turns shall be made in a 1 ½-inch maximum distance.

B. Suspension System for 2-foot by 4-foot Lay-in Acoustical Ceilings:

1. Main Runners: Install main runners 48 inches apart; 0.106-inch diameter hanger wires space 48 inches on center maximum along runners, and within 8 inches of ends.
2. Install wall moldings with fasteners to studs. Install corner caps at molding intersections.
3. Cross Tees: Install between main runners in a repetitive pattern of 2-foot spacings.
4. Sub-Tees: Install at edges of penetrations.

C. Acoustical Panels

1. Install panels into suspension system. Partial panels shall be neatly cut and fitted to suspension and around penetrations and/or obstructions. Duplicate tegular edges at partial panels; cuts to be straight. Repaint cut tiles to match color or as directed by manufacturer for mylar facing at visually exposed conditions or as required by the Architect.
2. Penetrations through the ceilings for sprinkler heads and other similar devices that are not integrally tied to the ceiling system in the lateral direction shall have a 2-inch oversized ring, sleeve or adapter through the ceiling tile to allow free movement of 1 inch in horizontal directions. Alternatively, per ASTM E580, a flexible sprinkler hose fitting that can accommodate 1 inch of ceiling movement shall be permitted to be used in lieu of the oversized ring, sleeve or adapter.

D. Air Distribution Devices

1. Refer to and coordinate with Division 23 - HVAC.
2. Install air distribution grilles and other devices into suspension system. Install 4 taut wires, each 0.106-inch diameter minimum, to each device within 3 inches of device corners, to support their weight independent of the suspension system.

E. Light Fixtures

1. Refer to and coordinate with Division 26 - Electrical.
2. Fixtures weighing less than 56 pounds: Install fixtures into suspension systems and fasten earthquake clips to suspension members. Install minimum 2 slack safety wires, each 0.106 inch

diameter minimum, to each fixture at diagonally opposite corners, to support their weight independent of the system.

3. Fixtures weighing 56 pounds or more: Install fixtures into suspension system and fasten earthquake clips to suspension system members as required by the Drawings and/or code. Install not less than 4 taut 0.106-inch diameter wires capable of supporting four (4) times the fixture load.
4. Support pendant-mounted light fixtures directly from the structure above with hanger wires or cables passing through each pendant hanger and capable of supporting two (2) times the weight of the fixture. Brace the pendant-mounted light fixtures by either a bracing assembly at the ceiling penetration or below the ceiling to the walls, as indicated in the drawings.

3.03 CLEANING

A. General: After installation of acoustical material has been completed, clean surfaces of the material, removing any dirt or discolorations. Replace panels as required.

B. Acoustical Panels: Minor abraded spots and cut edges shall be touched up with the same paint as was used for factory applied finish of the lay-in panels.

C. Remove and replace work that cannot be successfully cleaned and repaired to eliminate evidence of damage.

D. Remove rubbish, debris, and waste materials and legally dispose of off of the Project site.

3.04 PROTECTION

A. Protect the Work of this section until Substantial Completion.

END OF SECTION

SECTION 09 68 00

CARPET

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Broadloom and carpet tile.
2. Integrated walk-off mats
3. Base finish and accessories
4. Subfloor testing and preparation.
5. Installation of vapor retarder.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 00 72 00: Exhibit C: Abatement of Hazardous Materials.
3. Section 03 31 00 – Structural Concrete (for floor flatness and floor levelness).
4. Section 07 26 00: Vapor Retarders
5. Section 09 21 16: Gypsum Board Systems: Wall materials to receive base.
6. Section 09 65 00: Resilient Flooring.

1.02 REFERENCES

A. ANSI/ASTM E648-15e1 - Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

B. ASTM F1869-16 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

1.03 QUALITY ASSURANCE

A. Manufacturer, Contractor, and Installer Qualifications:

1. Manufacturer: Company specializing in contract flooring with ten-years minimum experience.
2. Flooring Contractor: Company with five years minimum documented experience, approved by manufacturer for the installation of the specified products and shall have access to all manufacturers required technical, maintenance, specifications and related documents.
3. Installer:

a. Floor covering installer must be factory trained and certified for the installation of the specific products being installed.

b. Installer to provide project inspector proof of certification prior to starting work.
c. Certified installer must be present on job site while work is in progress.

4. Testing Laboratory:
   a. Certified, bonded, qualified and experienced agency to perform pH and Relative Humidity (RH) emission tests.

B. Pre-Floor Covering Installation Meeting:

1. Contactor to notify Construction Manager with a minimum of 5-days' notice when anticipated to be ready for pre-floor covering installation meeting. (After subfloor preparation is complete and ready for floor covering installation.)
2. Contractor, installer, and manufacturer representative are required to attend pre-floor covering meeting. Contractor is responsible for coordinating and scheduling their attendance.
3. Construction Manager will schedule meeting with Contractor team, Project Inspector, and Architect.
4. Purpose of Meeting: To review subfloor preparation, verification of readiness for floor covering installation and use of correct products, verification of the acclamation of correct finish materials and review installation requirements.

C. Manufacturer's Field Services:

1. Manufacturer representative to attend the "Pre-Flooring" meeting.
2. Upon Owner or Architect's request, and with at least 72-hour notice, provide manufacturer's representative site visit(s) for inspection of product installation.
3. At the Owner's request, manufacturer representative to attend operation and maintenance training meeting for Owner's custodial staff prior to acceptance of floor covering installation.

1.04 SUBMITTALS

A. Provide a complete submittal package with all components required within this section. Submit per Section 01 33 00.

1. Product Data: Provide product data describing physical and performance characteristics, sizes, patterns, colors, material safety data sheets, and method of seaming and manufacture's installation instructions for all proposed products.
2. Shop Drawings:
   a. Provide a floor plan indicating all proposed seam locations and integrated walk-off mats. Indicate method of joining seams, and direction of carpet.

3. Samples:

a. Submit samples for color selection illustrating color and pattern for floor material with samples of matching walk-off mats, rubber base and transition material proposed for installation.
b. Submit sample of solvent welded seam.

4. Maintenance Data: Submit manufacturers recommend cleaning and maintenance data. Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
5. Recycled Content Percentage Submittals
6. Submit a statement signed by the manufacturer's Executive Officer or independent certification third-party that the provided carpet materials have the specified recycled material percentage.
7. Submit documentation of manufacturer's take-back program for carpet. Including:
   a. Confirmation that the new carpet being installed will be accepted (at the point of future replacement) through a manufacturer's operated program for recycling or reuse;
   b. Written description of such a process for the recycling and/or recovery of used/worn products;
   c. Contact information for the take-back program.
8. Existing Carpet Recycling Plan and Recycling Certification. Submit documentation describing the reclamation plan for existing carpet. Include appropriate contact information, overview of procedures, and limitations and conditions applicable to the project Carpet recycling options consist of:
   1. Repurposing - reusing the product in another application such as facilitating the donation of used carpeting to charities and other nonprofit organizations.
   2. Closed Loop Recycling - turning waste materials into new materials of the same value, such as vinyl backing into vinyl backing and nylon yarn into nylon carpet yarn.
   3. Open Loop Recycling – creating other product types from reclaimed carpet. For example, turning nylon face fiber into automotive parts or carpet padding, including nylon face fiber in recycled backings
   4. Waste-to-Energy - using carpet for waste-to-energy. In the case of waste-to-energy, manufacturer shall justify why carpet cannot be recycled as this method should be a last resort.
   5. Landfill or incineration – are not approved disposal methods
   6. At the completion of the project, a certificate shall be furnished verifying the reclamation of the carpet and the pounds of material diverted from the landfill.

1.05 OPERATION AND MAINTENANCE DATA

A. Submit cleaning and maintenance data under provisions of Section 01 33 00.

B. Include maintenance procedures, recommended maintenance materials, and suggested schedule and products for cleaning.

C. Provide in-service training with Owner's custodial staff prior to acceptance of flooring for proper care and maintenance of carpet. Also review and provide recommended type of furniture casters and glides.

1.06 DELIVERY, STORAGE AND HANDLING

A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Storage and Protection: Store materials protected for exposure to harmful weather conditions and at a temperature and humidity conditions recommended by manufacturer. Materials should be stored in areas that are fully enclosed, weather tight with the permanent HVAC system set at a uniform temperature of at least 68 degrees F (20 degrees C) for 72 hours prior to, during and after installation.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Store materials for three days prior to installation in area of installation to achieve temperature stability.

B. Maintain minimum 70 F ambient temperature at floor level three days prior to, during, and 24 hours after installation of materials.

C. Prior to testing for moisture vapor emission rate, space shall be enclosed, fully weather-tight, wet-work in space shall be completed and nominally dry, work above ceilings finished. The test site should be at the same temperature and humidity expected during normal use.

D. Maintain lighting at a minimum uniform level of 50 or more-foot candles in areas where the floor system is being installed.

E. Comply with CRI's "CRI Carpet Installation Standard" for temperature, humidity, and ventilation limitations.

F. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weather tight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants.

G. Floor temperature should be 60 °F minimum for proper adhesive curing and performance.

H. If subfloor is contaminated with an oily residue either from removal of "cutback" during asbestos abatement or from a previous end use such as metal fabrication, this residue MUST be totally removed or covered prior to applying modular adhesive and carpet.

1.08 CONCRETE SUBFLOOR TESTING

A. Testing for internal relative humidity of concrete slabs must be conducted in accordance with the current version of ASTM F2170, not to exceed manufacturer's requirements (ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes).

B. The Flooring Contractor shall verify in writing to the Owner, a minimum of thirty (30) days prior to scheduled carpet installation, the following substrate conditions:

1. Moisture: Initial emission rate, as tested with in-situ probes, per ASTM F 2170.
2. Alkalinity: pH level. Testing the pH at the surface of a concrete slab must be conducted in accordance with the current version of ASTM F710, not to exceed manufacturer's requirements (ASTM F710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.)

C. High Moisture and /or Alkalinity Readings:

1. New Construction (New Concrete Slab)
   a. If the Contractor's test results indicate that the slab relative humidity (RH) readings are below those of flooring manufacturer's requirement, then the Owner's representative will initiate independent testing to confirm results and will initiate additional testing using petrographic analysis to determine if the Water Cement Ratio and sufficient hydration has taken place.
      1) If it is determined that the Specifications were followed in their entirety, water/cement ratio (as specified), and or the concrete surface has been adequately hydrated; then the Contractor shall initiate a credit to the Owner for the cost of installation of the Vapor Retarders as specified in section 07 26 00 that were not installed.

2. Modernization Construction (Existing Concrete Slab)
   a. If the Contractor's test results indicate that the slab relative humidity (RH) readings are below those of flooring manufacturer's requirement, then the Owner's representative will initiate independent testing to confirm results.
      1) If the independent test results do not substantiate the Contractor's findings, then the Contractor will be directed to proceed with the Vapor Retarder installation and the retesting cost will be back charged to the contractor.
      2) If the independent test results confirm the Contractor's findings, then the Contractor shall initiate a credit to the Owner for the cost of installation of the Vapor Retarders as specified in section 07 26 00 that were not installed.

D. Comply with manufacturer's written requisites for field conditions including but not limited to testing for moisture, confirmation of vapor retarder, floor prep, bond test, photo documentation, etc.

1.09 EXTRA MATERIALS

A. Provide a minimum of 4 square yards of each color installed. In addition, provide all usable scraps one sq. yd. or larger in size. Remnants shall be packaged, identified and delivered to the Owners Representative, who will retain any he chooses for future repairs before they are removed from the job site.

B. Provide a minimum of 10 lineal feet of base and transition pieces of each material and color specified or 2 % whichever is greater.

1.10 WARRANTY

A. Manufacturer's Warranty: Twenty (20) year minimum manufacturer warranty commencing on recordation date of the Notice of Completion.

1. Should carpet, tend to creep, bulge, be defective in manufacturing, or show a substantial amount of wear - carpet shall be replaced with new carpeting at no cost to the Owner. Manufacturer to submit written warranty covering the following:
   a. 20 Year minimum, non-prorated Guarantee shall also include:
      1) No resiliency loss of backing.
      2) No zippering.
      3) Static protection (will not lose static property—will not give static discharge above 3.5KV).
      4) No edge ravel or zippering.
      5) Delamination.
      6) Surface wear (maintains at least 90% surface pile weight).
      7) No staining.
      8) Dimensional Stability.
      9) Moisture Resistance.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Carpet (Vinyl Cushioned Tufted Textile) and integrated walk-off mats: Color as selected by Owner Representative from Manufacturer's standard range. No other substitutions will be allowed.

1. Tandus Flooring – Broadloom Roll.
   a. "Aftermath II" Series with custom Antron fibers, 6'-0" roll, glue down. Powerbond cushion RS vinyl backing system and seam sealer.

2. Milliken Commercial – Broadloom Roll
   a. "Formwork", 13'-6" roll, glue down. Endura-Loc backing system.

3. Tandus Flooring – Carpet Tiles
   a. "Aftermath II" Series with custom Antron fibers, 6'-0" roll, glue down. Powerbond cushion RS vinyl backing system and seam sealer.

4. Milliken Commercial – Carpet Tiles
   a. "Journal Line By Line", 50cm x 50cm, glue down. PVC-Free WellBac Comfort Cushion.

5. Walk-Off System

a. “Abrasive Action II” walk-off system at all exterior doors in carpeted rooms. Color to be coordinated with carpet color selection.
b. “OBEX Tiles” carpet entryway system at all exterior doors in carpeted rooms. Color to be coordinated with carpet color selection.

B. Rubber Wall Base: Cove style, conforming to ASTM F 1861 or FS-SS-W-40, Type 1. New Construction - 4” high and 1/8-inch (3.2mm) gauge. Modernization-type projects and new construction cafeteria spaces - 6” high and 1/8-inch (3.2mm) gauge. No manufactured corners.

1. Burke Industries.
2. Armstrong.
3. Musson Rubber Co.
4. Roppe Rubber Corp.
5. Approved equal.

C. Resilient Edge and Adapter/Transition Strips: 1/8-inch-thick, tapered or bullnose, minimum of 1 inch wide.

1. Roppe
2. Johnsonite
3. Flexco Floors
4. Approved equal.

D. Leveling and Patching Compounds:

1. White premix latex; type recommended by carpet manufacturer. Install as recommended by manufacturer for specific application.

E. Primer:

1. Tandus Centiva: C-36E primer.
2. Milliken: No required.

F. Adhesives: Low VOC, waterproof, and as recommended by product manufacturer.

1. Tandus Centiva: C-16E Adhesive
2. Milliken: Mosaic Moisture XT Spray.

PART 3 – EXECUTION

3.01 EXAMINATION

A. New Construction (New Concrete Slab)

1. Installer must examine areas and conditions under which resilient flooring and accessories are to be installed and must notify General Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Owner and Architect.
2. Testing for internal relative humidity of concrete slabs must be conducted in accordance with the current version of ASTM F2170, not to exceed manufacturer's requirements (ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes).
3. Verify that new surfaces are smooth and flat with maximum variation as specified in 03 31 00-Structural Concrete and are ready to receive work.
4. Beginning of installation on new substrates means acceptance of substrate. The existing substrates will require as much preparation as necessary to provide proper installation of new materials.

B. Modernization Construction (Existing Concrete Slab)

1. If existing flooring was determined to be asbestos containing and required abatement, verify that the abatement work has been accepted by the Owner's representative prior to commencing work.
2. Testing for internal relative humidity of concrete slabs must be conducted in accordance with the current version of ASTM F2170, not to exceed manufacturer's requirements (ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes).

3.02 PREPARATION

A. New Construction (New Concrete Slab)

1. Install underlayment where flooring is being installed on a wooden subfloor per the manufacturer's instructions.
2. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with manufacturer recommended subfloor filler.
3. Apply, trowel, and float filler to leave a smooth, flat, hard surface.
4. Prohibit traffic from area until filler is cured.
5. Prepare floor substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as dirt, paint, grease, oils, solvent, curing and hardening compounds, sealers, asphalt and old adhesive residue. Vacuum clean substrate.
6. Apply primer to concrete surfaces.

B. Modernization Construction (Existing Concrete Slab)

1. Remove existing finishes, adhesives, and other materials as necessary to properly prepare existing substrates. (Refer to asbestos abatement procedures.)
2. Install underlayment where flooring is being installed on a wooden subfloor per the manufacturer's instructions.

3. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with subfloor filler.
4. Fill low spots, cracks, joints, holes and other defects with filler prior to flooring installation.
5. Apply, trowel, and float filler to leave a smooth, flat, hard surface.
6. Prohibit traffic from area until filler is cured.
7. Prepare floor substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as dirt, paint, grease, oils, solvent, curing and hardening compounds, sealers, asphalt and old adhesive residue. Vacuum clean substrate.
8. Apply primer to concrete surfaces.

3.03 CARPET INSTALLATION

A. Install in accordance with manufacturers' instructions and recommendations with fully welded seams.

B. Install flooring square with room axis and in accordance with approved shop drawing.

C. Layout roll-goods in a manner to minimize seams and avoid seams in traffic areas. End butt joints shall be kept to a minimum, shall be staggered, and shall occur where approved on detail plan layout. Use the largest sections possible to minimize seams. Avoid cross seams, filler pieces and strips. Match edges for color shading and pattern at the seams in compliance with the manufacturer recommendations.

D. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.

E. Scribe, cut, fit flooring to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture, including pipes, outlets, edgings, thresholds, nosing and cabinets.

F. Install edge strips at unprotected or exposed edges, and where flooring terminates.

G. Install flooring on covers for telephone and electrical ducts, and similar items occurring within finish floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on these covers.

H. Adhere carpet to prepared substrate without producing open cracks, voids, raising and puckering at joints, telegraphing to adhesive spreader marks, or other surface imperfections in completed installation.

I. Fully solvent weld all seams. Seams shall be unnoticeable in finished installation.

J. Verify carpet match before cutting to ensure minimal variation between dye lots.

K. Double cut carpet, to allow intended seam and pattern match. Make cuts straight, true, and unfrayed.

L. Lay carpet on floors with run of pile in same direction as anticipated traffic.

M. Do not change run of pile in any room where carpet is continuous through a wall opening into another room. Locate change of color or pattern between rooms under door centerline.

N. Complete installation shall conform to the Carpet Installation Standard of Carpet and Rug Institute (CRI).

3.03 INTEGRATED WALK-OFF MAT INSTALLATION

A. Install in accordance with manufacturers' instructions and recommendations.

B. Install modular tile like any “dry-back” modular with a full-spread wet adhesive.

C. Installation instructions for Tandus Floorcoverings’ Powerbond Non-RS (dry-back) Modules can be used as “reference only.”

D. Adhesives below are offered to install modular tile product based upon application and intended use:

1. #024 Solvent Free Outdoor Adhesive (Tandus SKU/Style # 919).
2. #002 Premium Grade Multi-Purpose Adhesive (Tandus SKU/Style # 920).
3. PS100 Pressure Sensitive Releasable Adhesive (Tandus SKU/Style # 923).
4. Milliken Mosaic XT.

E. Modular tile should be securely attached to the sub-floor in compliance with ADA Accessibility Guidelines, latest edition, for Building & Facilities, Section 4.5.3.

F. Provide integrated walk-off mats at all exterior door location where carpet is indicated to be installed. The walk-off mats shall extend a minimum of the door width plus six inches (6”) and six feet (6’-0”) in the direction of travel or as indicated on the drawings.

3.04 INSTALLATION - BASE MATERIAL

A. Install resilient wall base on entire wall perimeter including toe spaces and open ends of cabinets. Set all bases in adhesive as recommended by the manufacturer. All joints in bases shall be plumb, flush, tight and inconspicuous. Seat top edge and back of base firmly against the wall. Wrap base around all outside corners and no seams within 12” of corners. Interior corners shall be mitered and tightly fitted.

3.05 PROTECTION

A. Prohibit traffic from carpet areas for 24 hours after installation.

B. Protect flooring from damages by other trades prior to owner occupancy.

3.06 FINAL CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage. Remove and dispose of all small scraps, cartons, and rubbish upon completion of the work. Remove all loose threads with sharp scissors.

B. Clean carpet of all spots with proper spot remover, and vacuum carpet surfaces.

END OF SECTION

SECTION 09 91 00

PAINTING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Surface preparation.
2. Products and application.
3. Surface finish schedule.

B. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. 05 50 00 – Metal Fabrications.
3. 05 52 00 – Metal Railings.
4. 07 60 00 – Flashings and Sheet Metal.
5. 07 71 23 – Gutters and Related Flashings.
6. 08 11 00 – Metal Doors and Frames.
7. 08 14 00 – Wood Doors and Frames.
8. 08 31 00 – Access Doors and Panels.
9. 09 29 00 - Gypsum Board.
10. 09 51 00 – Acoustical Ceilings.
11. Division 21 – Fire Protection.
12. Division 22 – Plumbing.
13. Division 23 – Mechanical.

1.02 REFERENCES

A. ASTM D16 – Standard Terminology for Paint, Related Coatings, Materials, and Applications.

1.03 DEFINITIONS

A. Conform to ASTM D16 for interpretation of terms used in this Section.

1.04 SYSTEM DESCRIPTION

A. Preparation of all surfaces to receive final finish.

B. Painting and finishing work of this section using coating systems of materials including primers, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

C. Surface preparation, priming, and finish coats specified in this Section are in addition to shop-priming and surface treatment specified under other Sections.

D. Painting and finishing all exterior and interior surfaces of materials including structural, mechanical, and electrical work on site, in building spaces, and above or on the roof.

E. Paint exposed surfaces except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 01 33 00.

B. Provide manufacturer's technical information and instructions for application of each material proposed for use by catalog number.

C. List each material by catalog number and cross-reference specific coating with specified finish system.

D. Provide manufacturer's certificate that products proposed meet or exceed specified materials.

E. Submit samples under provisions of Section 01 33 00.

F. Submit two (2) samples 8-1/2 x 11 inch in size of each paint color and texture applied to cardboard. Resubmit samples until acceptable color, sheen and texture is obtained.

G. On same species and quality of wood to be installed, submit two (2) 4 x 8-inch samples showing system to be used.

1.06 QUALITY ASSURANCE

A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with five (5) years’ experience.

B. Applicator: Company specializing in commercial painting and finishing with five (5) years documented experience.

C. Regulatory Requirements

1 Comply with applicable codes and regulations of governmental agencies having jurisdiction including those having jurisdiction over airborne emissions and industrial waste disposal. Where those requirements conflict with this specification, comply with the more stringent provisions.

2. Comply with the current applicable regulations of the California Air Resources Board (CARB) and the Environmental Protection Agency (EPA).
3. Coats: The number of coats specified is the minimum number acceptable. If full coverage is not obtained with the specified number of coats, apply such additional coats as are necessary to produce the required finish.
4. Employ coats and undercoats for all types of finishes in strict accordance with the recommendations of the paint manufacturer.
5. Provide primers and undercoat paint produced by the same manufacturer as the finish coat.

D. Field Samples

1. Provide field samples under provisions of Section 01 33 00.
2. On wall surfaces and other exterior and interior components, duplicate specified finishes on at least 100 sq. ft. of surface area.
3. Provide full-coat finishes until required coverage, sheen; color and texture are obtained.
4. Simulate finished lighting conditions for review of field samples.
5. After finishes are accepted, the accepted surface may remain as part of the work and will be used to evaluate subsequent coating systems applications of a similar nature.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site and store and protect under provisions of Section 01 65 00.

B. Deliver products to site in sealed and labelled containers; inspect-to verify acceptance.

C. Full unopened 1 GAL can (new) - Container labelling to include paint Formula, manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing. Paint containers not displaying product identification will not be acceptable.

D. Store paint materials at minimum ambient temperature of 50 degrees F and a maximum of 90 degrees F, in well-ventilated area, unless required otherwise by manufacturer's instructions.

E. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.08 PROJECT CONDITIONS

A. Environmental Requirements

1. Provide continuous ventilation and heating facilities to maintain interior surface and ambient temperatures above 50 degrees F with a maximum humidity level of 50 percent for 24 hours before, during, and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
2. Do not apply exterior coatings during rain or snow, or when relative humidity is above 50 percent, unless required otherwise by manufacturer's instructions.

3. Minimum Application Temperatures for Latex Paints: 50 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
4. Minimum Application Temperature for Varnish and Urethane Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
5. Provide lighting level of 80 feet candles measured mid-height at substrate surface.

1.09 OWNER'S INSTRUCTIONS

A. Extra Material

1. If product used was SCUSD Paint shop's #1 choice listed in these technical specs, please provide 1-quart only unopened container of each color and surface texture to Owner along with physical draw down and formula; however, if any other product other than our first choice is used, do not provide any attic stock and instead only provide physical draws with formula for each color used.

    a. Separate draw downs and formula are required for each paint product, color, and sheen used.

2. Label each container with paint mixture formula, color, texture, and room locations in addition to the manufacturer's label.

1.12 WARRANTY

A. All "Deep Tone" colors shall be warranted for 10-year color retention with a delta loss of no more than 75 cie lab units.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Unless specifically identified otherwise, product designations included at end of section are those of the Dunn Edwards, www.dunnedwards.com and shall serve as the standard for kind, quality, and function.

B. Subject to compliance with requirements, other manufacturers offering equivalent products are:

1. Dunn Edwards, www.dunnedwards.com.
2. Kelly Moore, https://kellymoore.com/professional/contractors/
3. Sherwin Williams, https://www.sherwin-williams.com/painting-contractors/project-solutions/commercial

C. Substitutions: Under provisions of Section 01 25 13.

2.02 MATERIALS

A. Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.

B. Good flow and brushing properties; capable of drying or curing free of streaks or sags.

C. "Deep Tone" colors to be composed of 100 percent acrylic pigments, factory ground, with a colored base.

D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

E. Chemical Components of Interior Paints and Coatings: Shall not exceed the limitations of Green Seal's Standard GS-11 for VOC content and the following restrictions:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Non-Flat Paints and Coatings: VOC content of not more than 150 g/L.
3. Anticorrosive Coatings: VOC content of not more than 250 g/L.

F. Varnishes and Sanding Sealers: VOC content of not more than 350 g/L.

G. Stains: VOC content of not more than 250 g/L.

H. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

I. Restricted Components: Paints and coatings shall not contain any of the following:

1. Acrolein.
2. Acrylonitrile.
3. Antimony.
4. Benzene.
5. Butyl benzyl phthalate.
6. Cadmium.
7. Di (2-ethylhexyl) phthalate.
8. Di-n-butyl phthalate.
9. Di-n-octyl phthalate.
10. 1, 2-dichlorobenzene.
11. Diethyl phthalate.
12. Dimethyl phthalate.
13. Ethylbenzene.
14. Formaldehyde.
15. Hexavalent chromium.
16. lsophorone.

17. Lead.
18. Mercury.
19. Methyl ethyl ketone.
20. Methyl isobutyl ketone.
21. Methylene chloride.
22. Naphthalene.
23. Toluene (methylbenzene).
24. 1, 1, 1-trichloroethane.
25. Vinyl chloride.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:

1. Plaster and Gypsum Wallboard 12 percent.
2. Masonry, Concrete, and Concrete Unit Masonry 12 percent.
3. Interior Located Wood 15 percent, measured in accordance with ASTM 02016.
4. Exterior Located Wood 15 percent, measured in accordance with ASTM 02016.
   a. Beginning of installation means acceptance of existing surfaces.

3.02 PREPARATION

A. Work Not to Be Painted

1. Painting is not required on surfaces in concealed and inaccessible areas such as furred spaces, foundation spaces, utility tunnels, pipe spaces and duct shafts.
2. Do not paint metal surfaces such as stainless steel, chromium plate, brass, bronze, and similar finished metal surfaces.
3. Do not paint anodized aluminum or other surfaces which are specified to be factory pre-finished.
4. Do not paint sandblasted or architecturally finished concrete surfaces.
5. Do not paint prefinished acoustic materials or acoustic suspension systems.
6. Do not paint over Underwriters Laboratories, Factory Mutual or other code-required labels or identifications.
7. Do not paint exterior hot-dipped galvanized materials/products as specified elsewhere.

B. Surface Preparation

1. Remove all tacks, stickers, staples adhesive glue, picture hangers, protruding nails, tape and adhesive glue, and all other foreign materials from surfaces prior to priming or painting. Mask off and protect existing room identification tags including Asbestos tags on door frames.
2. All exterior surfaces to be painted will be pressure washed to remove all loose paint, blisters, bridged cracks, surface-chalk and loose debris at no less than 3200-PSI, or sand blasted.
3. If prior is not possible, washing all surfaces with TSP made by Synco or Jasco, by hand means, scraping and sanding of all surfaces is required prior to pre-priming for proper patching and painting of surfaces.
4. Prior to any painting, any wood or metal deficiencies should be replaced including but not limited to, doors, facial boards, overhang wood, siding, trim etc.
5. All glossy surfaces WILL be sanded prior to any paint application. NO EXCEPTIONS.
6. Clean all roofing tar from facial boards and metal flashing etc.
7. All factory primed new material wood, metal etc, will be sanded prior to priming and painting.
8. All surfaces to be patched will be pre-primed with the proper material as per manufacture specifications for substrate.
9. Any efflorescence will be primed as per Dunn-Edwards EFF-Stop concrete and masonry filler manufactures specifications.
10. Wash all doors, casings and other surfaces with TSP made by Synco or Jasco to remove oily dirt, dust, smoke, and other residues that could prevent proper adhesion of any paint products.
11. For all fillers and patching compounds used, surfaces will be primed before, after application, and before finish paint being applied.
12. Do not paint over all murals until artist waiver is filled out and provided. Please check with the SCUSD Paint Shop Supervisor before project starts.
13. All prep work will be done like the SCUSD standard NO EXCEPTIONS. This includes patching, scraping, sanding, caulking, and removal of all drips, sags, runs and removal of all foreign matter on or in painted surface.
14. All interior window trim, door trim, cabinets, cubbyholes, pin-board, counter tops in addition, wall panel joints shall be caulked.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Do not apply finishes to surfaces that are not dry.

C. Apply prime coat to surfaces which are to be painted or finished.

D. Apply each coat to uniform finish.

E. Sand lightly between coats to achieve required finish.

F. Allow applied coat to dry according to the Manufacturers Specifications before the next coat is applied.

G. The number of coats specified is the minimum that shall be applied. Apply additional coats when undercoats, stains or other conditions show through final paint coat, until paint film is of uniform finish, color and appearance.

H. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

I. Prime back surfaces of interior and exterior woodwork with primer paint.

J. Prime back surfaces of interior woodwork scheduled to-receive stain or varnish finish with water-based Urethane varnish.

K. Paint mill finished door seals to match door or frame.

L. Paint primed steel glazing stops in doors to match door or frame.

M. Cloudiness, spotting, lap marks, brush marks, runs, sags, spikes and other surface imperfections will not be acceptable.

N. Where spray application is used, apply each coat of the required thickness. Do not double back to build up film thickness of two (2) coats in one pass.

O. Where roller application is used, roll and redistribute paint to an even and fine texture. Leave no evidence of roller laps, irregularity of texture, skid marks, or other surface imperfections.

P. Finishing Mechanical and Electrical Equipment:

1. Refer to Division 23 and Division 26 for schedule of color coding and identification banding of equipment, ductwork, piping, and conduit.
2. Paint shop primed equipment. Do not paint shop prefinished items.
3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are prefinished.
5. Replace identification markings on mechanical or electrical equipment when painted accidentally.
6. Paint interior surfaces of air ducts, and connector and baseboard heating cabinets that are visible through grilles and louvers with one (1) coat of flat black paint, to limit of sight line. Paint dampers exposed behind louvers, grilles, and connector and baseboard cabinets to match face panels.
7. Paint exposed conduit and electrical equipment occurring in finished areas with existing matching wall color.
8. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

9. Color code equipment, piping, conduit, and exposed ductwork in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.
10. Replace electrical plates, hardware, light fixture trim, and fittings removed prior to finishing.
11. Paint grilles, registers, and diffusers which do not match color of adjacent surface.
12. Paint all mechanical and electrical equipment, vents, fans, and the like occurring on roof.
13. Do not paint moving parts of operating units; mechanical or electrical parts such as valve operators; linkages; sensing devices; and motor shafts.
14. Do not paint over labels or equipment identification markings.
15. Do not paint mechanical room specialties such as compressors, boilers, pumps, control panels, etc.
16. Do not paint switch plates, light fixtures, and fixture lenses.

3.04 CONSTRUCTION

A. Priming:

1. All new or bare galvanized metal will first be etched and then primed with appropriate galvanized latex or oil base primer, use cleaner and primmer measures as per manufactures specification.
2. All door and Casings may be sprayed. Doors may also be tight rolled with a 3/8th inch nap roller. All casings to be brushed or laid off with a brush. ABSOLUTELY NO EXCEPTIONS.
3. All holes and cracks are to be filled with the proper exterior patching compound and latex caulking with silicone.
4. All rusty ferrous and ferrous metal are to be primed with a rust-inhibitive red, gray or white oxide all galvanized metal will be primed with a galvanized primer.

B. Finish Coat

1. All existing walls and overhangs to be coated with 100% acrylic exterior eggshell exterior paint.
2. All fascia boards to be coated with 100% acrylic exterior semi-gloss paint.
3. All metal poles, ungalvanized OR painted handrails, and iron gates are to be finished in water-borne alkyd urethane semi-gloss finish paint.
4. All doors and casings to have water-borne alkyd urethane finish, including tops, bottoms, and proper edges of doors and casings according to trade standards. All doors can be sprayed or tight rolled with a 3/8th inch nap roller or sprayed. All Casings must have sprayed or brushed finishes. NO EXCEPTIONS.
5. All concrete pillars are to be done in water-borne alkyd urethane semi-gloss paint.
6. All trim finishes are to be done in water-borne alkyd urethane semi-gloss paint.
7. All colors and product material to be used are to be APPROVED by the SCUSD paint shop Supervisor before application NO EXCEPTIONS.
8. Interior lower walls below door header to be painted with water-borne alkyd urethane.
9. Interior doors, door trim and painted cabinets to be painted with water-borne alkyd urethane.
9. Interior kitchens and baths to be painted with water-borne alkyd urethane.

3.05 REPAIR/RESTORATION

A. PATCHING

1. After completion of painting in any one room or area, repair surfaces damaged by other trades.
2. Touch-up or re-finish as required to produce intended appearance.

3.06 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 45 00.

B. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary.

C. The Owner will engage the services of an independent testing agency to sample paint material being used.

D. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.

E. The testing agency will perform appropriate quantitive materials analysis and other characteristic testing of materials as required by the Owner.

F. If test results show materials being used and their installation do not comply with specified requirements or manufacturer's recommendations, the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing and repaint surfaces to acceptable condition.

3.07 CLEANING

A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.

B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.

C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.08 PROTECTION OF COMPLETED WORK

A. Protect finished installation under provisions of Division 01.

B. Erect barriers and post warning signs. Maintain in place until coatings are fully dry.

C. Confirm that no dust generating activities will occur following application of coatings.

3.09 SCHEDULES

A. Color Schedule Guidelines

1. Paint and finish colors shall be selected by the Architect from manufacturer's entire range to match District standard colors or compliment those colors with the approval of the SCUSD Paint Shop Supervisor.
2. Access doors, registers, exposed piping, electrical conduit and mechanical/electrical panels: Generally, the same color as adjacent walls.
3. Exterior and interior steel doors, frames and trim: Generally, a contrasting color to adjacent walls.
4. Doors generally are all the same color, but of a contrasting color from frame and trim.
5. Exterior and interior steel fabrications: Generally, a contrasting color to adjacent walls.
6. Exposed interior mechanical/ductwork: Generally, a contrasting color to adjacent walls or ceiling.
7. Ceilings are generally to be painted a different color than walls.
8. Five (5) different color schemes for painting of walls.
9. Approximately 20 percent of overall painting work will be required to be "Deep Tone" colors. This work will require one (1) additional coat of paint beyond that as specified.
10. All existing walls and overhangs to be painted should be colored as either the SCUSD (SPECIAL HEATHER) or to match existing body color.
11. All fascia boards should be painted using 1 of the 5 standard SCUSD trim colors. Please check with SCUSD Paint Shop Supervisor for correct formula.
12. Interior upper walls above door frame to be done in (SCUSD ALTAMONT) SHEEN TO MATCH.
13. Interior lower walls below door header to be done in (SCUSD (COLONY WHITE) SHEEN TO MATCH.
14. Exterior Body color to be (SCUSD SPECIAL HEATHER) some school colors to be determined. Check with SCUSD paint shop Supervisor. Exterior trim colors to be determined by SCUSD paint shop Supervisor and school site.
15. Interior kitchens and baths to be painted to match existing paint finish material.
16. All pin boards if not replaced or re-covered with appropriate material, shall be patched then painted with SCUSD approved pin board paint and color.

B. Exterior Painting Schedule

1. Concrete Substrates, Masonry, Clay, Stucco, Non-Traffic Surfaces:
   a. Prime Coat: Primer, alkali resistant, waterbased, interior/exterior, Dunn-Edwards, Eff-Stop Premium, ESPR00.
   b. Intermediate Coat: Latex, exterior, matching topcoat.
   c. Topcoat: Latex, exterior, eggshell, Dunn-Edwards, Evershield, EVSH30, 100% acrylic, (Gloss Level 3).
      Or
   d. Topcoat: Latex, exterior, low sheen, Dunn-Edwards, Evershield, EVSH40, 100% acrylic, (Gloss Level 4).
      Or

e. Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3).
Or
f. Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).
Or
g. Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5).

2. CMU Substrates:
   a. Prime Coat: Block filler, latex, interior/exterior, Dunn-Edwards, Smooth BLOCFIL Select SBSL00 or Eff-Stop Premium ESPR00.
   b. Intermediate Coat: Latex, exterior, matching topcoat.
   c. Topcoat: Latex, exterior, eggshell, Dunn-Edwards, Evershield, EVSH30, 100% acrylic, (Gloss Level 3).
   Or
   d. Topcoat: Latex, exterior, low sheen, Dunn-Edwards, Evershield, EVSH40, 100% acrylic, (Gloss Level 4).

3. Wood Substrates:
   a. Prime Coat: Primer, waterbased, exterior, Dunn-Edwards, Ultra-Grip Premium UGPR00 or EZ-Prime Premium EZPR00
   b. Intermediate Coat: Latex, exterior, matching topcoat.
   c. Topcoat: Latex, exterior, eggshell, Dunn-Edwards, Evershield, EVSH30, 100% acrylic, (Gloss Level 3).
   Or
   d. Topcoat: Latex, exterior, low sheen, Dunn-Edwards, Evershield, EVSH40, 100% acrylic, (Gloss Level 4).
   Or
   e. Topcoat: Latex, exterior, semi-gloss, Dunn-Edwards, Evershield, EVSH50, 100% acrylic, (Gloss Level 5).

4. Ferrous Metal Substrates:
   a. Waterborne Urethane Alkyd Enamel System:
      1) Prime Coat: Primer, rust inhibitive, waterborne alkyd, interior/exterior, Dunn-Edwards, Bloc-Rust Premium BRPR00 Series or Enduraprime rust preventative primer ENPR00.
      2) Intermediate Coat: Waterborne urethane alkyd, interior/exterior matching topcoat.
      3) Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3).
      Or
      4) Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).
      Or
      5) Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5)

5. Non-Ferrous Metal Substrates:
    a. Waterborne Urethane Alkyd Enamel over a Latex Primer System:
        1) Prime Coat: Primer, waterbased, interior/exterior, Dunn-Edwards Ultrashield Galvanized Metal Primer ULGM00.
        2) Intermediate Coat: Waterborne urethane alkyd, interior/exterior, matching topcoat.
        3) Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3).
        Or
        4) Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).
        Or
        5) Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5)

C. Interior Painting Schedule

1. Gypsum Board Substrates:
    a. Prime Coat: Primer sealer, latex, interior, Dunn-Edwards, Vinylastic Select VNSL00.
    b. Intermediate Coat: Latex, interior, matching topcoat
    c. Topcoat: Latex, interior/exterior, eggshell, Dunn-Edwards, Evershield, EVSH30, (Gloss Level 3).
    Or
    d. Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3).
    Or
    e. Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).
    Or
    f. Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5)

2. Wood Substrates:
    a. Prime Coat: Primer, acrylic, for interior wood, Dunn-Edwards, Ultra-Grip Select UGSL00 or Dunn-Edwards, Decoprime DCPR00.
    b. Intermediate Coat: Latex, interior, matching topcoat.
    c. Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3)
    Or
    d. Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).
    Or
    e. Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5)

3. Ferrous Metal Substrates:
   a. Ultra-Premium Low Odor / Zero VOC Latex over a Waterborne Alkyd Primer System:
      1) Prime Coat: Primer, alkyd, anti-corrosive, for metal, Dunn-Edwards, Bloc-Rust Premium BRPR00 Series or Enduraprime rust preventative primer ENPR00.
      2) Intermediate Coat: Latex, interior, matching topcoat.
      3) Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3)
         Or
      4) Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).
         Or
      5) Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5).

4. Non-Ferrous Metal Substrates:
   a. Pre-Treatment: Water based, Krud Kutter, Metal Clean & Etch SCME-01
   b. Prime Coat: Primer, water based, Dunn-Edwards, Ultrashield Galvanized Metal Primer ULGM00.
   c. Intermediate Coat: Latex, interior, matching topcoat.
   d. Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3)
      Or
   e. Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).
      Or
   f. Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5).

Cross-Over Chart			
Paint Type	**Dunn-Edwards BOD**	**Kelly Moore**	**Sherwin Williams**
100% Acrylic Eggshell Exterior Paint	EVSH30 Evershield 100% Acrylic	1294 Envy Exterior 100% Acrylic	KxxW000xx Series Emerald Exterior Acrylic Latex
100% Acrylic Low Sheen Exterior Paint	EVSH40 Evershield 100% Acrylic	1294 Envy Exterior 100% Acrylic	KxxW000xx Series Emerald Exterior Acrylic Latex
100% Acrylic Semi-Gloss Exterior Paint	EVSH50 Evershield 100% Acrylic	1298 Envy Exterior 100% Acrylic	KxxW000xx Series Emerald Exterior Acrylic Latex
Water-Borne Alkyd Urethane Eggshell Interior/Exterior Paint	ASHL30 Aristoshield Urethane Alkyd	1997 Epic Urethane Alkyd Enamel	KxxW0xxxx Series Emerald Urethane Trim Enamel

Water-Borne Alkyd Urethane Low Sheen Interior/Exterior Paint	ASHL40 Aristoshield Urethane Alkyd	1997 Epic Urethane Alkyd Enamel	KxxW0xxxx Series Emerald Urethane Trim Enamel
Water-Borne Alkyd Urethane Semi-Gloss Interior/Exterior Paint	ASHL50 Aristoshield Urethane Alkyd	1998 Epic Urethane Alkyd Enamel	KxxW0xxxx Series Emerald Urethane Trim Enamel

END OF SECTION

SECTION 26 50 00

LIGHTING

PART 1 - GENERAL

1.01 SUMMARY

A. Work included: Labor, materials, and equipment necessary to complete the installation required for the item specified under this Division, including but not limited to:

1. Interior luminaires (lighting fixtures.)
2. Exterior luminaires.
3. Light-emitting diode (LED) assemblies.
4. Drivers and transformers.
5. Optical components; including diffusers, refractors, reflectors, and louvers.
6. Poles and brackets.
7. Unit battery equipment.

B. Related Work: Consult all other Sections, determine the extent and character of related Work, and properly coordinate Work specified herein with that specified elsewhere to produce a complete installation.

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Division 03: Concrete; for cast-in place bases for lighting poles and bollards.
3. Division 05: Metals; for fittings, brackets, backing supports, rods, etc. as required for support and bracing of luminaires.
4. Division 09: Finishes; for ceilings, wall assemblies, acoustical treatment, and field painting of luminaires.

1.02 REFERENCES

A. Comply with the latest edition of the following applicable Specifications and Standards except as otherwise indicated or specified:

1. American National Standards Institute (ANSI):

ANSI/IEC 60529;	American National Standard for Degrees of Protection Provided by Enclosures (IP Code)
C137.0	Lighting System Terms and Definitions.
C137.1	0-10V Dimming Interface for LED Drivers and Controls

2. Underwriters Laboratories, Inc. (UL):

UL 66;	Fixture Wire.
UL 102.3;	Standard Method of Fire Test of Light Diffusers and Lenses.

UL 844;	Luminaires for Use in Hazardous (Classified) Locations.
UL 924;	Emergency Lighting and Power Equipment.
UL924a;	Auxiliary Power Supplies (for generator-backed systems.)
UL 1574;	Track Lighting Systems.
UL 1598;	Luminaires.
UL 1598C;	Light-Emitting Diode Retrofit Luminaire Conversion Kits.
UL 1838;	Low Voltage Landscape Lighting Systems.
UL 1993;	Self-Ballasted Lamps and Lamp Adapters.
UL 2007A;	Shatter Containment of Lamps for Use in Regulated Food Establishments.
UL 2108;	Low Voltage Lighting Systems.
UL 2592;	Low Voltage LED Wire.
UL 5085-3;	Low Voltage Transformers: Class 2.
UL 8750;	Light Emitting Diode (LED) Equipment for Use in Lighting Products.
UL 8753;	Field-Replaceable Light Emitting Diode (LED) Light Engines.
UL 8754;	Holders, Bases, and Connectors for Solid-State (LED) Light Engines and Arrays.

3. National Electrical Manufacturers Associations (NEMA):

SSL-1;	Electronic Drivers for LED Devices, Arrays or Systems.
SSL-4;	Retrofit Lamps—Minimum Performance Requirements.
77;	Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria.
LE-4;	Recessed Luminaires, Ceiling Compatibility
100;	Wire Insulation Colors for Lighting Systems

4. Illuminating Engineering Society of North America (IESNA):

TM-15;	Luminaire Classification System for Outdoor Luminaires.
TM-21;	Projecting Long Term Lumen Maintenance of LED Light Sources.
TM-30;	Method for Evaluating Light Source Color Rendition.
TM-30-Annex E	Recommendations for Specifying Light Source Color Rendition
LM-79;	Electrical and Photometric Measurements of Solid-State Lighting Products.
LM-80;	Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules.

LM-84; Measuring Luminous Flux and Color Maintenance of LED Lamps, Light Engines, and Luminaires.

LM-86; Measuring Luminous Flux and Color Maintenance of Remote Phosphor Components

5. Restriction of Hazardous Substances (RoHS):

RoHS 3; Directive 2015/863 - Cat 5. Lighting: lamps, luminaires, light bulbs.

1.03 SYSTEM DESCRIPTION

A. Provide and install a fully functional and operating lighting system as indicated, complete with light engines, lamps, wiring, and securely attached to support system to meet all seismic code requirements.

B. Where catalog number and narrative or pictorial descriptions are provided, the written description shall take precedence and prevail.

1.04 SUBSTITUTIONS

A. Refer to Section 260010: Basic Electrical Requirements for specific Equipment requirements.

B. Items specified under this Section and Luminaire Schedule are subject to the requirements, with the following qualifications:

1. Items solely specified by Manufacturer name and catalog number, without qualifiers: Provide as specified – No Substitutions.

2. Items specified by multiple Manufacturers, without qualifiers: Provide any listed manufacturer – No Substitutions.

3. Items specified by sole or multiple Manufacturers, followed by “Or Approved Equal” or “Or Approved Equivalent”: Conform to substitution requirements outlined for Equipment.

4. Items specified by sole or multiple Manufacturers, followed by “Or Equal” or “Or Equivalent”: Products that meet the salient requirements are acceptable to provide.

a. Equivalency is at the sole judgement of the Architect and Engineer.

b. Should a submitted, unspecified product fail to meet the requirements of Equivalency, provide specified products at no additional cost to the Owner.

C. Equivalency shall be determined by review of the following luminaire characteristics where applicable. Lack of pertinent data on any characteristic shall constitute justification for rejection of the submittal or substitution.

1. Performance:

a. Distribution.

b. Utilization.

c. Luminance distribution (Average brightness / maximum brightness.)

d. Spacing to mounting height ratio.

e. Overall luminaire efficiency.

2. Construction:
    a. Engineering.
    b. Workmanship.
    c. Rigidity.
    d. Permanence of materials and finishes.
3. Installation Ease:
    a. Captive parts and captive hardware.
    b. Provision for leveling.
    c. Through-wiring ease.
4. Maintenance:
    a. Ease of relamping / replacement of LED array.
    b. Ease of replacement of driver/ballast and lamp sockets.
5. Appearance:
    a. Architectural integration.
    b. Light tightness.
    c. Styling.
    d. Conformance with design intent.
    e. When requested, furnish a working sample complete with housing, trim, 8’ cord and plug, and specified lamp.

1.05 SUBMITTALS

A. Submit in accordance with the requirements of Section 260010: Basic Electrical Requirements, the following items:
    1. Complete bill of material listing (index) of all luminaires. Index shall be organized in the same sequence as the Luminaire Schedule (alphabetical.) Include in the index:
        a. Type per the Luminaire Schedule.
        b. Manufacturer.
        c. Complete catalog number, including all accessories and appurtenances required for the installation.
        d. Voltage.
        e. Poles, arms, and brackets, if applicable.
        f. Lamping, if applicable.
    2. Manufacturer’s data sheets/catalog cuts for each product and component specified herein, listing all physical and electrical characteristics and ratings indicating compliance with all listed standards.

a. Identify luminaire type on each sheet.

b. Clearly mark on each data sheet the specific item(s) being submitted. Obfuscate or otherwise delete options on data sheets that are not provided.

3. Driver or transformer and/or lamp data sheets as applicable to submitted item.

4. Manufacturer's installation instructions.

5. Warranty.

6. U.L. labeling information.

7. Photometric Reports consisting of:

a. Independent Testing Laboratories, Inc. or equal, photometric test report for each luminaire listed on the Luminaire Schedule. Test reports shall be based on Illuminating Engineering Society published test procedures and shall contain candlepower distribution curves in five lateral planes for luminaires with asymmetric distributions and luminance data for vertical angles above 45 degrees from nadir.

b. Coefficient of utilization table.

c. Zonal lumen summary including overall luminaire efficiency.

8. Shop Drawings:

a. Where noted in the Luminaire Schedule, submit Shop Drawings from Manufacturer detailing modified or custom luminaires indicating dimensions, weights, methods of field assembly, components, features, accessories, methods of support, etc.

9. Mock-ups: Provide mock-up luminaire samples where “MOCK-UP” is indicated in the Luminaire Schedule. Refer to Part 3 – Execution for requirements.

1.06 OPERATION AND MAINTENANCE MANUAL

A. Supply operation and maintenance manuals in accordance with the requirements of Section 260010: Basic Electrical Requirements, to include the following:

1. An updated index per 1.05-A.

2. One complete set of final submittals of actual product installed, including product data and shop drawings.

3. Instructions for routine maintenance.

4. Pictorial parts list and parts number.

5. Telephone numbers for authorized parts and service distributors.

1.07 QUALITY ASSURANCE

A. All materials, equipment and parts comprising the units specified herein shall be new, unused, and currently under production.

B. Only products and applications listed in this Section may be used on the Project unless otherwise submitted.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery: Luminaires shall not be delivered to the Project site until protected storage space is available. Storage outdoors covered by rainproof material is not acceptable. Equipment damaged during shipment shall be replaced and returned to Manufacturer at no cost to Owner.

B. Storage: Store in a clean, dry, ventilated space free from temperature extremes. Maintain factory wrapping or provide a heavy canvas/plastic cover to protect units from dirt, water, construction debris and traffic. Provide heat where required to prevent condensation.

C. Handling: Handle in accordance with Manufacturer's written instructions. Be careful to prevent internal component damage, breakage, denting and scoring. Damaged units shall not be installed. Replace damaged units and return equipment to Manufacturer.

1.09 WARRANTY

A. Units and components offered under this Section shall be covered by a ***1***-year parts and labor warranty for malfunctions resulting from defects in materials and workmanship. Warranty shall begin upon acceptance by the Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Products furnished by the following Manufacturers shall be acceptable if in compliance with all features specified herein and indicated on the Drawings.

1. Luminaires, Poles, and Exit Signs: as listed in the Luminaire Schedule.
2. Light-Emitting Diode (LED) Arrays:
    a. Cree.
    b. Nichia.
    c. Citizen.
    d. Lumileds.
    e. Samsung.
    f. Lumenetix Araya.
    g. Xicato.
    h. Bridgelux.
    i. LEDs provided by Luminaire Manufacturer listed in the Luminaire Schedule: meeting the technical and warranty requirements of this Section.
3. LED replacement and integral-driver lamps:
    a. General Electric.
    b. Osram.
    c. Cree.
    d. Maxlite.
    e. Green Creative.

f. Soraa.

4. LED drivers (DC output):
   a. eldoLED.
   b. Lutron.
   c. Signify Advance.
   d. Osram.
   e. Q-Tran.
   f. Universal Lighting Technologies.
   g. Drivers provided by Luminaire Manufacturer listed in the Luminaire Schedule: meeting the technical and warranty requirements of this Section.
5. Transformers for LED systems (AC output):
   a. Q-Tran.
   b. Hatch.
   c. Semper Fi.
   d. Transformers provided by Luminaire Manufacturer listed in the Luminaire Schedule: meeting the technical and warranty requirements of this Section.
6. Unit battery equipment:
   a. Philips Bodine.
   b. Myers/Iota.
   c. Unit battery equipment provided by Luminaire Manufacturers listed in the Luminaire Schedule: meeting the technical and warranty requirements of this Section.

B. Substitutions: Under provisions of Section 260010: Basic Electrical Requirements.

2.02 GENERAL

A. Luminaires new and complete with mounting accessories, junction boxes, trims, and lamps.

B. Luminaire assemblies U.L. listed appropriate to mounting conditions and application. All labels affixed to the luminaire shall be in a location not visible from normal viewing angles.

C. Each luminaire family type (downlights, etc.) supplied by only one manufacturer.

D. Recessed luminaires installed in fire rated ceilings and using a fire rated protective cover shall be thermally protected for this application and shall carry a fire rated listing.

E. Luminaires installed under canopies, roofs or open areas and similar damp or wet locations shall be UL listed and labeled as suitable for damp or wet locations.

F. Luminaires shall bear the IP rating appropriate for the application.

G. Luminaires shall be free of light leaks and shall be designed to provide sufficient ventilation of light engines, including ventilation holes where required.

2.03 LUMINAIRE CONSTRUCTION

A. All sheet metal Work shall be free from tool marks and dents and shall have accurate angles bent as sharp as compatible with the gauges of the required metal. 20-gauge (0.7-mm or 0.027-inch) minimum.

1. Finish: Baked white dry polyester powder, unless otherwise specified, with a minimum average reflectance of 85% on all exposed and light reflecting surfaces. Steel components shall be prepared for finishing with a 5-step zinc phosphating process prior to painting.

2. Luminaire (including all painted component parts) shall be painted after fabrication unless specifically noted in the Luminaire Schedule.

B. Extruded Aluminum Housings: One-piece housing of AA 6063 T5 extruded aluminum with 0.14 minimum thickness smooth and free of tooling lines in one uninterrupted section of 1-foot to 24-foot with the cross sectional dimensions as indicated in the Luminaire Schedule.

C. Die-Cast Aluminum Housings:

1. Single-piece casting to ensure water tightness.

2. Low copper (<0.7% Cu) aluminum alloy.

3. Minimum Class 4 Consumer Grade per NADCA Standards.

D. All surfaces shall be cleaned and dressed to eliminate all exposed sharp edges or burrs.

E. All intersections and joints shall be formed true and of adequate strength and structural rigidity to prevent any distortion after assembly.

F. End Plates: Die cast end plates shall be mechanically attached without exposed fasteners. End caps shall be minimum 0.125" thick.

G. All mitered corners or joints shall be accurately aligned with abutting intersecting members. Sheet metal Work shall be properly fabricated so that planes will not deform (i.e. become concave or convex) due to normal expected ambient and operating conditions.

H. Ferrous mounting hardware and accessories shall be finished using either a galvanic or phosphate primer/baked enamel process to prevent corrosion and discoloration of adjacent materials.

I. Fasteners shall be manufactured of galvanized steel.

J. Adjustable Lamp Mechanisms: To have aiming stops which can be permanently set to position lamp vertically and rotationally.

K. Recessed luminaires: Equip with through-wire junction box. Box, driver, and replaceable components shall be accessible from the ceiling opening of the luminaire.

L. Finish:

1. All exposed aluminum surfaces shall be treated with an acid wash and clear water rinse prior to painting. The luminaire shall then be electrostatically painted, or powder coated, and oven baked in the color indicated in the Luminaire Schedule.

2. All exposed steel surfaces shall be treated with an acid wash and clear water rinse, then prime coated. The luminaire shall then be electrostatically painted, or powder coated, and oven baked in the color indicated in the Luminaire Schedule.

M. Door Frames for lensed luminaires: White painted, flat aluminum with mitered corners.

2.04 SUSPENSION

A. Suspension Devices, type as specified in the Luminaire Schedule:

1. Aircraft Cable: Stainless steel type - 3/32" nominal diameter, stranded, with positive pressure, field adjustable clamp at luminaire connection.

2. Rigid Pendant: ½" nominal diameter or as specifically shown on drawings. Supplied by luminaire manufacturer when available as standard product. At luminaire end of stems, provide earthquake type swivel fitting to permit 45-degree swing in any direction away from vertical.

3. Chain hangers: Length to suit mounting height if shown or as field conditions dictate. Use two heavy duty chains with "S" hooks at each suspension point. Length to suit mounting height as shown on Drawings.

B. Suspension system must permit ±13-mm (1/2") minimum vertical adjustment after installation.

C. Supports:

1. Provide internal safety cable from luminaire body to stud in outlet box.

2. Carry luminaire weight to structure and provide horizontal bracing from suspension points to ceiling framing to prevent sideways shifting. Provide diagonal seismic restraint wires per code.

D. Feed Point:

1. Flat-plate canopy to cover outlet box, with holes for support cable and power cord, concealed fasteners to permit splice inspection after installation.

2. At the electrified connection provide straight cord feed.

3. Power cord: white multi-conductor cord, parallel to support cable (aircraft cable); within pendant (rigid pendant); or flexible conduit (chain hanger).

4. Where emergency feed is required, a separate feed point shall be provided.

E. Non-feed Points:

1. 13-mm (½") O.D. polished chrome end sleeve, inside threaded ¼"-20, with 50-mm (2") diameter. Flat white plate to cover hole in ceiling. Top of cable with ball swaged on end, to fit inside sleeve.

2. Contractor to provide support above ceiling as required.

F. Suspension method shall allow adjustment to be made in hanging length to allow for variance in ceiling height.

G. All exposed paintable suspension components shall have the same finish and color as the luminaire housing.

2.05 LAMPHOLDERS

A. Of configuration and design to accept standard lamp bases.

B. Wiring channels and lampholder mountings shall be rigid and accurately constructed.

C. Integral-driver LED:

1. Medium screw base: Unglazed porcelain body or thermoplastic (PET GF) with copper-alloy screw shell. 660watt, 250volt rated.
2. Bi-Pin base: Ceramic casing with mica cover plate, copper allow contact surfaces. Pin distance designed for lamp provided.

2.06 LED ARRAYS

A. Minimum lumen maintenance per LM-80 measurements and TM-21 calculations: L90 at 60,000 hours.

B. Maximum burnout: B90 at 200,000-hours.

C. Free of mercury and toxic materials; RoHS compliant.

D. Linear LED boards: LED pitch shall be consistent throughout the luminaire and shall remain consistent from the end of one board to the start of the next. LED pitch shall be the same from the endcap of the luminaire to the last LED on the board as the LED pitch throughout the luminaire. Luminaire shall have a continuous luminous appearance – bright or dark spots are not acceptable.

E. White LEDs:

1. Interior
    a. Correlated Color Temperature (CCT): 4000K
    b. Minimum efficacy: 75 lumens per watt.
    c. L70 lifetime: minimum 80,000-hours (extrapolated.)
    d. Correlated Color Temperature (CCT); as specified in Luminaire Schedule. Maximum 3-step MacAdam ellipse variation throughout listed life (L70).
    e. Color Rendering Index (CRI); minimum 80 Ra.
    f. R9 value; minimum 30.
    g. TM30 values; Rf >75, 92>Rg>110.
2. Exterior
    a. Correlated Color Temperature (CCT): 4000K
    b. Minimum efficacy: 100 lumens per watt.
    c. L70 lifetime: minimum 100,000-hours (extrapolated.)
    d. Correlated Color Temperature (CCT); as specified in Luminaire Schedule. Maximum 4-step MacAdam ellipse variation throughout listed life (L70).
    e. Color Rendering Index (CRI); minimum 70 Ra.
    f. R9 value; minimum 20.
    g. TM30 values; Rf >70, 80>Rg>120.

F. Tunable White LEDs:

1. CCT range as specified in Luminaire Schedule.
2. Color temperature at each “step” shall follow the Planckian Locus (Black Body Curve), +/- 50K.

3. Color adjustment via separate 0-10volt input from driver.
4. Submit Chromaticity curves for review.

G. RGB Color LEDs:

1. As specified in Luminaire Schedule.

2.07 LED DRIVERS:

A. LED drivers shall be integral to luminaire housing or remotely located, when specified, within 15 feet of diode assembly.

1. Luminaires shall be provided with the UL listed or equivalent driver and low voltage power supply as recommended by Manufacturer to insure proper and consistent lamp and luminaire performance. The number of LEDs per luminaire per power supply shall not be exceeded, and LEDs shall not be wired to a high capacity driver unless recommended by Manufacturer.
2. Light Emitting Diode (LED) control gears shall operate with sustained variations of +/- 10% in voltage and frequency without damage to the driver and have a power factor not less than 90%. Regulations: +/-5% across the listed load range.
3. Driver input current shall have Total Harmonic Distortion (THD) of less than 20%. The Driver shall have a Class A sound rating unless otherwise specified.
4. Control gear shall be rated for 50-degree C ambient temperature.
5. All control gear shall facilitate smooth, flicker-free dimming from 100% to 10%, 1% or 0.1% as noted on the Luminaire Schedule.

2.08 LENSES

A. Acrylic:

1. Lenses shall be extruded or injection molded crystal clear 100% virgin acrylic (except as indicated otherwise). For lenses with male pattern of pyramids or cones, specified minimum thickness refers to distance from flat surface to base of pyramids (cones) or thickness of undisturbed material. For lenses with female pattern, specified minimum thickness refers to overall thickness of material.
2. Lenses shall fully eliminate lamp images when viewed from all directions within 45 to 90-degree angles from vertical, where the ratio of lamp spacing to the distance from lamp underside to top of lens does not exceed 1.50. Within the viewing angle from 0 to 45-degrees the ratio of maximum brightness (under a lamp) to minimum brightness (between lamps) shall not exceed 3 to 1.
3. Finishes (i.e. sandblasting, etching, polishing) shall be performed as described in the Luminaire Schedule.
4. Plastic electrical light diffusers must meet the requirements of Section 2-5209, CAC, Flame Spread Rating.
5. Prismatic Acrylic:
    a. Extruded of clear virgin acrylic plastic, 0.125" minimum overall thickness, 0.100” nominal unpenetrated thickness, Pattern 12 with flat sided female prisms running at 45 degrees off

panel axis unless otherwise specified in the luminaire schedule. Concave prisms are not acceptable.

6. Opal acrylic:
    a. Extruded or injection molded of virgin acrylic plastic, 0.080" minimum overall thickness.

2.09 REFLECTOR CONES

A. Reflector cones shall be manufactured of uniform gauge, not less than 0.032” thick, high purity aluminum, Alcoa 3002 alloy, free of spin marks or other defects or blemishes caused during manufacturing.

B. The finish on the inner surface of the reflector shall be as described in the Luminaire Schedule and as produced by the Alzak process. The reflector shall have an anodic coating of not less than four mils thick. The reflector inner surface shall be free of water spotting and shall maintain a reflectivity ratio of not less than 83% on clear specular finishes. The reflectors shall have a low iridescence finish.

C. All luminaires using Alzak reflector cones shall be supplied by the same manufacturer unless directed otherwise in Luminaire Schedule.

D. Provide 45-degree lamp and lamp imaging cut-off unless otherwise specified in the Luminaire Schedule. Where upper reflector is separated from cone, cut-off shall be 45-degrees unless otherwise noted.

E. Plastic materials shall not be used for reflector cones or aperture plate materials.

F. Luminaires in which reflector cones are riveted or welded to the housing or where removal of the cone requires pressure to be applied to the finished surface of the reflector shall not be acceptable.

G. Cone flange shall be formed as an integral part of the cone and shall have identical color and finish as the cone, except when specified otherwise in the Luminaire Schedule. The flange major surface shall be perpendicular to the cone axis. The width of the flange shall adequately cover the ceiling opening without light leaks. No luminaire parts (housing, mounting frame, etc.) shall be visible between the ceiling surface and the edge of the cone flange.

H. Reflector cone retention devices shall not deform the cone in any manner.

2.10 TRACK LIGHTING SYSTEMS

A. Lighting Track: Extruded aluminum track with extruded poly-vinyl insulator. 20amp copper conductor strips with separate ground to provide electrical and mechanical connection for the specified track mounted luminaires.

1. Line Voltage Dimming: Number of circuits as indicated in luminaire schedule, with separate neutrals per circuit.

2. 0-10V Dimming: Labeled and listed for the application.

3. Wireless Dimming: Provide with QR code to allow users to access the associated wireless application.

B. Provide connectors, elbows, stems, feed ends, end caps and fittings to make a complete system.

C. Track Fittings: To provide positive mechanical and electrical connection for track heads to track. Removable fitting either twists into or snaps into specified lighting track.

D. Luminaire dimensions: Proper for the various wattage noted on the plans and as recommended by the luminaire manufacturer or as specified.

E. Adjustable Lamp Mechanisms: To have adjustable aiming which can be set to position lamp vertically and rotationally.

F. Drivers: Integral to track fitting, to provide proper DC current to LED arrays.

G. Finish: All visible surfaces to be of color and texture as directed in Luminaire Schedule.

H. Labels: Track and track fittings shall be compatible and be U.L. labeled and listed as a system.

2.11 POLES

A. Wind-load strength: 80 mph and 1.3 gust factor for total support assembly, including pole, base and anchorage, where used, to carry the combined Effective Projected Area (EPA) rating of the luminaire heads, arms, supports, and appurtenances at the indicated heights above grade without deflection or whipping.

B. Pole shafts:

1. Round straight, round tapered, square straight, or square tapered as noted on the Luminaire Schedule.

2. Steel poles: Steel tubing conforming to ASTM A 500, Grade B, carbon steel with a minimum yield of 46,000 psi. Single piece construction up to 40-feet in height.

C. Arm, bracket and tenon mount materials: Finish to match poles.

D. Mountings, fastenings, and appurtenances: Corrosion-resistant components compatible with the poles and luminaires that will not cause galvanic action at contact points. Provide mountings that will correctly position the luminaire to provide the indicated light distribution.

E. Handhole: Provide handhole and cover near base of pole shaft for access to wiring compartment.

F. Grounding lug: Provide grounding lug for grounding conductor with access through handhole.

G. Pole bases: Anchor type with galvanized steel hold-down or anchor bolts, leveling nuts and bolt covers.

H. Anchor bolt covers: Spun or two-piece gravity held unless otherwise specified.

I. Pole-top tenons: Fabricated to support the luminaire indicated and securely fastened to the pole top.

2.12 LIGHTING TRANSFORMERS

A. Low voltage transformers:

1. Low voltage transformers shall be core and coil construction, unless otherwise noted.

2. Primary voltage shall be as noted in Luminaire Schedule, secondary voltage 12volt AC, unless otherwise noted.

3. Sound rating shall be the best available. Replace excessively noisy transformers at no cost to the Owner.

2.13 UNIT BATTERY EQUIPMENT

A. LED Emergency Power Supplies

1. Standard Features:

a. Safety compliance to UL 924; CAN/CSAC22.2 No.141-10 and NFPA requirements for 90-minute egress

b. Open circuit / short circuit protection

c. Operating temperature: 32-degree F/0-degree C to 122-degree F/50-degree C

2. Test switch / charging indicator light

3. Emergency reaction time < 1-sec

4. Powder coat steel, stainless or galvan-nealed case

5. Field-replaceable NiCd battery pack (x2) with quick connect

6. Min. lead wire length: 6in UL 1452 solid / #18 AWG 1000volt / 90-degree C

PART 3 - EXECUTION

3.01 EXAMINATION

A. Contractor shall thoroughly examine Project site conditions for acceptance of luminaire installation to verify conformance with Manufacturer and Specification tolerances. Do not commence with installation until all conditions are made satisfactory.

3.02 PREPARATION

A. Architectural Plans shall govern exact ceiling construction and mounting conditions for all luminaires. Locate as shown on the architectural elevations and reflected ceiling plan.

B. Consult Architectural Drawings for details of ceiling construction, finish, and other applicable details.

C. Contractor shall be responsible for coordination of luminaire mounting and compatibility with ceiling construction.

D. Luminaires in areas where exposed or concealed pipe and ductwork prevents direct access to the structural ceiling shall be provided with appropriate support system to install luminaire below obstructions to avoid conflicts with same.

3.03 ARCHITECTURAL COORDINATION

A. Where luminaires are mounted in architectural coves, soffits, valances, or cabinets and are given an overall length, the Contractor shall verify all lengths in the field prior to releasing order.

B. Where luminaires are surface mounted or suspended to match the length of walls or other architectural elements, the Contractor shall verify all lengths in the field prior to releasing order.

C. Mounting heights specified on drawings:

1. Wall mounted luminaires: shall be to centerline of luminaire.

2. Pendant mounted luminaires: shall be to bottom of luminaire unless specifically identified in the Luminaire Schedule or on drawings.

3.04 INSTALLATION

A. Install luminaires in accordance with Manufacturer's written instructions, as indicated on the Drawings and as specified herein.

B. Contractor shall be responsible for all supports, hangers, and hardware necessary for a complete installation.

C. Luminaires shall be plumb, level, square, in straight lines and without distortion.

D. Remedy light leaks that may develop after installation of recessed or enclosed luminaires.

E. Adjustable luminaires shall be installed with “dead” zone of rotation away from intended aiming point.

3.05 LUMINAIRE SUPPORTS

A. Physical (gravity) supports:

1. Recessed luminaires in wood framed ceilings shall be supported by 2" x 4" hangers fastened to adjacent ceiling joists.

2. Recessed downlights in wood frame ceilings shall be supported with Manufacturers supplied bar hangers and shall be installed according to the Manufacturer’s instructions.

3. Surface mounted luminaires solely supported by recessed boxes in a gypsum board ceiling shall have a 1-1/8" steel bar screwed or welded to the back of the box. This steel bar must be long enough to span two ceiling support channels and shall be attached to the channels by twisting wire around the bar and the support channel. For luminaires weighing over 50-pounds, provide studs in recessed box.

4. Support surface mounted luminaires more than 18" wide at or near each corner or edge, in addition to support from outlet box.

5. Support recessed downlights manufactured with built-in brackets by twisting wire around the bracket and two adjacent ceiling support channel runners on either side of the luminaire.

6. Support outlet boxes as specified in Section 260533: Boxes. Provide all boxes with grounding pigtail.

7. On concrete ceilings, use one of the following for supporting luminaires other than by outlet box:

a. Preset concrete inserts, provided inserts are completely covered by the luminaire after installation.

b. 1/4-20 threaded appropriate length wedge type anchor.

B. Seismic supports:

1. Recessed luminaires in suspended ceilings shall be supported by connecting two support wires to the luminaire at diagonal opposite corners for luminaires weighing 56 pounds or less. Connect four wires, one at each corner for luminaires weighing more than 56 pounds.

2. Surface mounted luminaires on suspended ceilings shall be attached to the main ceiling runner with at least two positive clamping devices and shall have an additional support wire attached to each clamping device and to the structure above.
3. Recessed downlight luminaires in suspended ceilings shall be supported by connecting one support wire to the luminaire housing.
4. All suspended luminaires shall be able to swing 45-degrees from vertical in any direction without obstruction.
    a. Furnish suspended rigid pendant luminaires with universal joint type hanger canopy and longitudinal sway adapter at each stem, to permit 45-degree swivel on 360-degree circle at canopy and 45-degree longitudinal movement at sway adapter.
    b. Submit Drawings of hanger assembly for review prior to ordering.
    c. If suspended luminaire is not free to swing 45-degrees in any direction, without obstructions, provide seismic restraint to prevent contact in conformance with California Uniform Building Code, Section 2330, Seismic Design.
5. All recessed modular luminaires shall be furnished with earthquake clips where installed in tee bar ceiling.

3.06 INSTALLATION OF POLES

A. General: Store poles on decay-resistant treated skids at least 1-foot above grade and vegetation. Support pole to prevent distortion and arrange to provide free air circulation.

B. Metal poles: Retain factory-applied pole wrappings until just before pole installation. For poles with nonmetallic finishes, handle with web fabric straps.

C. Wood poles: Do not drag treated poles along the ground. Do not handle poles with tongs, cant hooks and other pointed tools capable of producing indentation more than ¼-inch in depth. Do not apply tools to ground line section of poles.

D. Pole installation: Use fabric web slings (not chain or cable) to raise and set poles.

3.07 CONCRETE FOUNDATIONS

A. Construct concrete foundations conforming to Division 03, Section "Cast-In-Place Concrete."

B. Utilize manufacturer’s bolt templates to properly position anchor bolts.

C. Provide leveling nut to anchor bolt prior to pole base. After pole leveling, pack non-shrink grout between pole base and concrete foundation.

D. Comply with details and Manufacturer's recommendations for reinforcing, anchor bolts, nuts and washers.

3.08 ATTIC STOCK

A. Spare Parts: Provide spare parts totaling 5 percent of the quantity specified, or two total, whichever is greater, of the following:

1. Luminaires:
2. Lenses:

3. LED Drivers:

4. LED Modules:

3.09 IDENTIFICATION SYSTEM

A. All concealed junction box cover plates for the lighting branch circuit system shall be clearly marked with a permanent black ink felt pen identifying the branch circuit (both panel designation and circuit number) contained in the box.

3.10 FIELD QUALITY CONTROL

A. Visual and mechanical inspection:

1. Inspect for physical damage, defects, alignment and fit.

2. Perform operational test of each luminaire after installed, circuited, and energized.

3. Perform emergency operational test of all luminaires connected to emergency circuiting by simulating normal power source failure.

B. Contractor shall replace at no cost to the Owner all equipment which is found defective or do not operate within factory specified tolerances.

3.11 MOCK-UPS

A. The purpose of the mock-up is to study the general appearance and performance of and to make comparisons between the various lighting systems. At that time, certain minimal test variations may be requested as to lamp location, lamp type, reflector shape, color, etc. Final modifications, if any, shall be considered a part of these Specifications and shall be accomplished with no additional cost to the Owner.

B. Where noted in the Luminaire Schedule, the Contractor shall provide sample(s) for use in full-size field mockup of specific luminaires.

C. The Contractor shall allow time in the bid and be responsible for procuring and installing a sample luminaire on the Project for review, prior to acceptance and final installation.

D. This mock-up will be required to be coordinated and reviewed with the Owner's Representative and the Architect or Engineer.

E. The Contractor shall be responsible for providing the labor and materials for the field mock-up including, but not limited to, special rigging or scaffolding and adjustments in the field, as directed by the Architect or Engineer.

F. The mock-up installation shall closely conform to the conditions of the actual final installation as to height, distance from adjacent surfaces, number and type of lamps, material, color, etc.

G. The Contractor shall submit a written description of each proposed mock-up with Drawings in order to obtain Architect’s approval prior to commencement of each mock-up.

H. Exterior mockups will occur at night, starting 2-hours after local sunset. Dates to be coordinated with design team to suit schedules. Contractor to propose multiple dates at least 4 weeks in advance.

I. Allow two, 6-hour mockup sessions per luminaire. The second mockup, if required, will occur after additional or alternate equipment is available.

J. Contractor to provide all required security, sidewalk closures, lifts, walkie-talkies (4 minimum) and manpower to make changes to color and intensity of the temporary luminaires.

K. Mockup luminaire shall not be used for final permanent installation unless approved by the design team.

3.12 ADJUSTING AND AIMING

A. Aiming will occur at night under the direction of the Owner's Representative and the Architect or Engineer. The Contractor shall be responsible for providing the labor and materials for field aiming. This shall include, but not limited to, special rigging or scaffolding, adjusting luminaires in field, testing of various lenses or louvers, as directed by the Architect or Engineer.

B. Aim all directional luminaires, including but not limited to luminaires described in the Contract Documents or by the luminaire manufacturer as "aimable," "adjustable," or "asymmetric" as follows:

1. To provide the lighting pattern for which the luminaire is designed.
2. To provide the lighting pattern as shown on the drawings.
3. To predetermined aiming points as shown on the drawings.
4. Where aiming cannot be determined, request, in writing, clarification from the Specifier, indicating luminaires needing clarification.

C. Re-aim luminaires as determined by Architect during final project walkthrough.

3.13 CLEANING

A. Clean luminaires prior to Project closeout in accordance with Manufacturer's recommended materials and methods.

B. Remove all debris, fingerprints, and packaging remnants.

END OF SECTION

SECTION 32 12 00

ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:

1. Asphalt paving mix designs.
2. Aggregate Base Course.
3. Asphalt Overlay.
4. Seal Coat and Striping.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 310000, Earthwork.
4. Section 313200, Soil Stabilization.

1.03 QUALITY ASSURANCE

A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.

B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.

C. The representatives of the Owner’s testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner’s testing lab representatives nor the testing by the Owner’s testing lab shall excuse the contractors or subcontractors for defects discovered in their work during or following completion of the project. Correcting inadequate compaction is the sole responsibility of the contractor.

D. Contractor shall provide verification that asphalt mix temperature meets the requirements of this specification at time of application.

E. Contractor shall be solely responsible for all subgrades built. Any repairs resulting from inadequate compaction are the responsibility of the contractor.

F. Sieve analysis from testing laboratories identifying rock/sand percentages within the asphalt mix shall have a testing date within 90 days of contract signing.

G. Sieve analysis from a testing laboratory identifying rock/sand percentages within the class 2 aggregate base rock shall have a testing date within 90 days of contract signing.

1.04 SUBMITTALS

A. Refer to Section 01 33 00.

B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

1.05 WARRANTY

A. Refer to General Conditions and Section 01 78 36.

1.06 REFERENCES AND STANDARDS

A. ANSI/ASTM D698-00 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.

B. ANSI/ASTM D1556-00 - Test Method for Density of Soil in Place by the Sand-Cone Method.

C. ANSI/ASTM D1557-02 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

D. ANSI/ASTM D 3017-05 Test Methods for Moisture Content of Soils and Soil-Aggregate Mixture by Nuclear Methods (Shallow Depth).

E. ANSI/ASTM D 4318-05 Test Method for Liquid Limit, Plastic Limit, and Plasticity Limit.

F. CALTRANS Standard Specifications.

G. CAL-OSHA, Title 8, Section 1590 (e).

H. Any work within the street, highway or right-of-way shall be performed in accordance with the requirement of the governmental agencies having jurisdiction, and shall not begin until all of those governing authorities have been notified.

1.07 DELIVERY, STORAGE AND HANDLING

A. Transport, store and handle in strict accord with the local jurisdiction.

B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.08 PROJECT CONDITIONS

A. Environmental Requirements:

1. Base Course: Do not lay base course on muddy subgrade, during wet weather, or when atmospheric temperature is below 40 degrees F.
2. Asphalt Surfacing: Do not apply asphaltic surfacing on wet base, during wet weather, or when atmospheric temperature is below 50 degrees F.

B. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

C. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.

D. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

E. Any construction review of the Contractor's performance conducted by the owner’s representative is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

F. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.

G. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

H. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

I. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.

1.09 TESTING

A. General: Refer to Section 01 40 00 – Quality Requirements.

B. Geotechnical Engineer: Owner is retaining a Geotechnical Engineer to determine compliance of fill with Specifications, and to direct adjustments in fill operations. Costs of Geotechnical Engineer will be borne by Owner; except those costs incurred for re-tests or re-inspection will be paid by Owner and backcharged to Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Sterilant: Soil sterilizer shall be CIBA GEIGY's Pramatol 25-E or Thompson-Hayward Casoron.

1. Soil sterilizer shall be applied in strict accordance with manufacturer's instructions.

B. Base Course Aggregate: State Specifications, Section 26, Class 2 aggregate base (3/4" max.).

C. Asphalt Binder: Steam-refined paving asphalt conforming to State Specifications, Section 92, viscosity grade PG 64-10. Asphalt binder additives for HMA per Caltrans approved list of manufacturer's.

D. Liquid Asphalt Tack Coat: Per CALTRANS section 94.

E. Surface Course Aggregate: Mineral aggregates for Type "B" asphalt concrete, conforming to State Specifications 39-2.02, Type B, ½" maximum, medium grading. 3/8" maximum grading at Playcourt.

F. Seal Coat: shall be a pre-mixed asphalt emulsion blended with select fillers and fibers such as:

1. "Park-Top No. 302", Western Colloid Products.
2. "OverKote", Reed and Gram.
3. "Drivewalk", Conoco Oil.

G. Wood Headers and Stakes: Pressure treated.

H. Pavement Marking: Colors as directed by Architect. Colors of painted traffic stripes and pavement markings must comply with ASTM D 6628.

1. Waterborne traffic line - colors white, yellow and red, State specification PTWB-01R3.
2. Waterborne traffic line for the international symbol of accessibility and other curb markings – blue, red and green, Federal specification TT-P-1952F.

I. Precast Concrete Bumpers: 3000 psi at 28 day minimum strength; 48" length unless otherwise indicated; provide with steel dowel anchors and concrete epoxy.

J. Pavement Epoxy; K-Lite; Ktepx-590; Ennis Epoxy HPS2 or an approved equal.

K. Crack Filler;

1. Cracks up to ½": QPR model CAR08, 10oz asphalt crack filler; Star STA-FLEX Trowel Grade crack filler or approved equal.
2. Cracks ¼" – 1": "Docal 1100 Viscolastic, distributed by Conoco, Inc., Elk Grove, CA, (916) 685-9253, or approved equal.
3. Cracks greater than 1": Hot Mix, Topeka.

L. Reclaimed Asphalt Paugment (RAP). HMA Type A or Type B may be produced using RAP providing it does not exceed 15% of the aggregate blend.

2.02 MIXES

A. General: Plant mixed conforming to State Specifications, Section 39, Type B, ½" maximum, medium grading. 3/8" maximum grading shall be used at hardcourt.

B. Temperature of Hot Mix Asphalt: Not less than 275 degrees F nor more than 325 degrees F when added to aggregate.

C. Temperature of Hot Mix Aggregate: Not less than 250 degrees F nor more than 325 degrees F when asphalt is added.

D. Temperature of Hot Mix Asphalt Concrete: Asphalt shall be not less than 285 degrees at time of application, nor more than 350 degrees. Asphalt not meeting the required temperature shall not be used.

E. Temperature of Warm Mix Asphalt: Mixing and placement; Per the approved manufactures heat range recommendations for mixing and placement.

PART 3 - EXECUTION

3.01 EXAMINATION OF CONDITIONS

A. Conditions of Work in Place: Subsurfaces which are to receive materials specified under this Section shall be carefully examined before beginning work hereunder, and any defects therein shall be reported, in writing, to the Architect. Work shall not be started until such defects have been corrected. Starting of work shall imply acceptance of conditions as they exist.

3.02 PREPARATION

A. Sub-Grade: Clean, shape and compact to hard surface free from elevations or depressions exceeding 0.05' in 10' from true plan. Compact per Section 31 00 00. Compaction and moisture content shall be verified immediately prior to placement of aggregate base. Proof roll subbase in presence of geotechnical engineer prior to placement of aggregate base.

B. Cleaning: Existing surfaces and new surface shall be clean of all dirt, sand, oil or grease. All cracks shall be cleaned and free of all debris and vegetation. Hose down entire area with a strong jet of water to remove all debris.

3.03 INSTALLATION

A. Headers:

1. General: Install as edging to asphalt paving, except where adjoining existing pavement, concrete curbs, walks or building.
2. Existing Headers: Remove existing headers where new paving will join existing. Saw cut existing asphalt to provide clean edge.
3. Lines and Levels: Install true to line and grade. Cut off tops of stakes 2-inches below top of header so they will not be visible on completion of job.

B. Asphalt Paving:

1. Base Course: Install in accord with State Specifications, Section 26. Compact to relative compaction of not less than 95%, ASTM D1557. The material shall be deposited on the subgrade in such a manner as to provide a uniform section of material within five percent tolerance of the predetermined required depth. Deposition will be by spreader box or bottom dump truck to prevent segregation of the material. The material so deposited on the subgrade shall have sufficient moisture which, in the opinion of the Architect is adequate to prevent excessive segregation. It shall then be immediately spread to its planned grade and cross section. Undue segregation of material, excessive drifting or spotting of material will not be permitted. If in the opinion of the site geotechnical engineer, the material is unsuitably segregated, it shall be removed or completely reworked to provide the desired uniformity of the material.
   a. Moisture content and compaction of base material shall be tested immediately prior to placement of asphalt paving.
2. Sterilant: Apply specified material at manufacturer's recommended rate. Applicator of sterilant material shall be responsible for determining location of all planter areas. Apply specified material over entire base course area just prior to application of asphalt. Follow manufacturer's printed directions.
3. Liquid Asphalt Tack Coat: Apply as "tack coat" to all vertical surfaces of existing paving, curbs, walks, and construction joints in surfacing against which paving is to be placed.
4. Asphalt Concrete Surface Course:
   a. Comply with State Specifications, 39-6 except as modified below.
      1) Final gradation shall be smooth, uniform and free of ruts, humps, depressions or irregularities, with a minimum density of 91% of the theoretical maximum specific gravity determined by California Test Method #309. Maximum variation 1/8 inch in 10' when measured with steel straightedge in any one direction. Test paved areas for proper drainage by applying water to cover area. Correct portions that do not drain properly by patching with plant mix. In no case shall accessible parking spaces or loading and unloading areas exceed 2% slope in any direction.
      2) Asphalt material shall be delivered to the project site in a covered condition to maintain acceptable temperature. Onsite inspector shall verify temperature of asphalt upon truck arrival to the site.
5. Placement and adjustment of Frames, Covers, Boxes and Grates: The Contractor shall set and adjust to finish grade all proposed and existing frames, covers, boxes, and grates of all manholes, drop

inlets, drain boxes, valves, cleanouts, electrical boxes and other appurtenant structures prior to placement of asphaltic concrete.

6. Water Testing: All paved areas shall be water tested, to check drainage, in the presence of the project inspector prior to placement of seal coat. The surface of asphalt paving shall not vary more than 1/8 inch above or below the grade established on the plans. If variations in grade are present, they will be corrected by overlaying paving and/or pavement removal and replacement as directed by the Architect.
7. Patching: Cut existing paving square and plumb at all edges to be joined by new paving. In trenches; grind existing asphalt on each side of trench 3" wide x ½ the depth of the section. Apply tact coat to vertical surfaces before installing new work. Warp carefully to flush surface, with seal over joints, and feather edge. Sawcut, remove and patch existing paving where cutting is necessary for installation of piping or conduits under Divisions 2, 15 and 16.

C. Seal Coat:

1. Seal coat shall be applied no sooner than 30 days from time of asphalt placement, no exceptions.
2. Surface Preparation: surface and cracks shall be clean of all dirt, sand, oil or grease. All cracks shall be filled to a level condition after curing. Make multiple fill applications until a level condition is achieved. Failure to do so will be the reason for rejection. Hose down entire area with a strong jet of water to remove all debris. Remove soft, loose, or otherwise damaged areas of asphalt concrete to full depth of damage and replace with compacted hot mix asphalt concrete as specified herein. Minor holes and imperfections may be patched using hot mix asphalt or mastic using sand/SS-1-H. Use wire brush for removal of oil and grease; prime with shellac or synthetic resin as recommended by manufacturer of pavement sealer material.
3. Seal Coat Seal Application: Thoroughly mix materials and apply in the presence of the onsite inspector. Failure to do so will be cause for rejection. Apply in accordance with manufacturer's written instructions.
   a. The minimum application rate for each applied coat shall be 30gals per 1000 sq. ft. Two coats of sealcoat will be required.
   b. Clean-Up and Precautions: As recommended by pavement sealer material manufacturer.

D. Asphalt Concrete Overlay Paving:

1. Comply with State Specifications, 39-6 except as modified below.
2. Grind or remove existing asphalt concrete paving at limits of overlay paving to provide a minimum 1 1/2" overlay thickness. Limits of grinding or removal shall be field verified to insure that finished paving surface will have a one percent minimum slope.
3. Thoroughly clean surface to remove vegetation, dirt, sand, gravel and water from surface and from cracks. Vegetation shall be treated 7 days prior to removal with an herbicide.
4. Cracks greater than 1 inch shall be filled with hot mix asphalt and rolled and compacted. Cracks less than one inch shall be filled with crack filler. Potholes shall be filled with hot-mix rolled and compacted. Contractor shall have Engineer approve crack and pothole repair prior to overlay. Provide leveling courses of hot mix asphalt as required to achieve finish grades shown on the drawings.
   a. Cracks less than one inch in width shall be level after curing. Contractor shall make multiple filling applications as necessary to achieve a level condition.

5. Place overlay when ambient air temperature is 40 degrees F. and rising, and when pavement is dry.
6. An asphalt tack coat shall be applied to existing surface area at a rate of 0.20 gallons per square yard. Application width shall be width of fabric plus 2 to 6 inches.
7. Place, spread and compact asphalt overlay to provide a minimum density of 95% of maximum theoretical unit weight as determined by California Test Method #304. Maximum variation 1/8" in 10' when measured with steel straight edge in any one direction. Test paved areas for proper drainage by applying water to cover area. Correct portions that do not drain properly by patching with plant mix. Minimum compacted overlay thickness 1 1/2 inches.

[EDIT NOTE] USE ONLY FOR SITE THAT REQUIRE SANDSEAL MIX.

D. Sandseal application:

1. Coat No. 1 and 2: Add 300 lbs of #30 mesh sand and 1 gallon of SS-1 to 100 gallons of pavement sealer. Apply at 2.0 gallons per 100 sq. ft.
2. Coat No. 3: Apply pavement sealer at minimum rate of 1.0 gallon per 100 sq. ft.

E. Pavement Marking: pavement markings shall be done only after the seal coat has thoroughly dried. Existing surfaces to be striped with traffic paint shall be cleaned of dust, dirt, grime, oil, rust or other contaminants which will impair the quality of work or interfere with proper bond of paint coats. Surfaces shall be thoroughly cleaned by whatever means necessary that will satisfactorily accomplish the purpose without damage to asphalt concrete. Provide measured layouts, temporary markings, templates, and other means necessary to provide required marking. Prepare and apply paint in accordance with manufacturer's instructions; paint shall be applied by spray and shall achieve complete coverage free from voids and thin spots. Where indicated on the Drawings, paint parking stall strips, lettering, arrows, accessible symbols, playfield markings, etc. on asphalt concrete paving. Paint strips shall be 4 inches wide (except otherwise indicated) and applied with two (2) coats of herein specified Traffic Line Paint; white (except as otherwise specified or indicated).

1. Paints shall be delivered to the site in unopened containers.
   a. Paint shall not be diluted, or watered down.
   b. Paint shall be applied in 10-12 wet mil thickness (4-6 mil dried). Each coat thickness shall be verified by the project inspector.
2. International Accessible Symbol: Symbol shall be white figures on a blue background. Blue shall be equal to PMS 293C. Lines and symbols shall be accurately formed and true to line and form; lines shall be straight and uniform in width. Painted edges shall be clean cut and free from raggedness, and corners shall be cut sharp and square. Tolerances: Apply striping within a tolerance 1/2 inch in 50 feet. Apply markings and striping to widths indicated with a tolerance of 1/4 inch on straight sections and 1/2 inch on curved sections.

F. Colors: As directed by Architect

G. Precast Concrete Bumpers: Install in location where shown, using steel rebar dowels, and epoxy.

3.04 DEFECTIVE ASPHALT;

Defective asphalt is as described below.

A. Exposed rock pockets on the finished surface that lack the # 8- #200 fines that is required per the sieve analysis.

B. Asphalt not placed to the design grades.

C. Asphalt that ponds water.

D. Asphalt that was compacted below the minimum required temperature and is cracked.

E. Asphalt that fails to meet the minimum compaction requirements.

F. Asphalt that lacks the minimum thickness required per plan.

G. New asphalt contaminated by a petroleum product, or spilled paint.

H. Asphalt that has depressions, cracks, scored divits from dumpster wheels, heavy equipment use, heavy construction products,

I. Asphalt placed on pumping, unstable sub-grades.

3.05 CLEANING

A. Refer to Section 01 74 00.

B. Upon completion of work of this Section promptly remove from the working area all scraps, debris and surplus material of this Section.

C. Clean excess material from surface of all concrete walks and utility structures.

END OF SECTION